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Aurora Energy's proposal to customise its prices and quality standards

Draft decision

Date of publication: 12 November 2020

Associated documents

Publication date	Reference	Title
19 May 2020	N/A	Restoring Otago and Queenstown's power network – Fact sheet
19 May 2020	N/A	Introductory paper about Aurora Energy's upcoming CPP proposal
30 July 2020	ISBN: 978-1-869458-28-7	Discussion of key issues and questions for consumer and stakeholders
30 July 2020	ISBN: 978-1-869458-24-9	Regulatory framework and how we will assess the proposal
30 July 2020	N/A	Consumer summary key issues paper
30 July 2020	N/A	Fact sheet on Aurora's CPP proposal
30 July 2020	N/A	Fact sheet on the Commission's assessment process
30 July 2020	N/A	Consumer feedback form on key issues paper
30 July 2020	N/A	Aurora's proposed IM variations for its CPP

Commerce Commission
Wellington, New Zealand

Foreword

It is vitally important that any infrastructure is maintained and renewed at the right time so that it can be used reliably and safely for as long as necessary. Where this does not happen, the cost of restoring the infrastructure will be higher than otherwise and those dependent on it will not receive the level of service they need.

Unfortunately, over the past decade, the safety and reliability of Aurora Energy's electricity lines network has steadily deteriorated through a lack of investment. It is generally accepted that having underinvested in maintenance and replacing old assets for many years, Aurora now needs to spend more to make its network safe and prevent a further increase in power outages.

Aurora began taking steps to repair its network in 2017, and its application for a customised price-path (CPP) is a continuation of this process. It took a long time for its underinvestment to cause the problems in its network, and it will be some years before it is fixed.

The scale of Aurora's proposed investment and related price increases, along with the known community concern over network safety and power outages, means that public engagement with this process has been, and will continue to be, particularly vital.

We want to thank Aurora's customers for engaging with us so clearly and constructively over these past four months. At a time when Covid-19 has severely impacted the local economy, with no certainty as to when the recovery may come, we know an increase in energy bills will come at a difficult time for Otago communities.

Through our town hall meetings, online sessions and traditional written submissions, Otago consumers have expressed their disappointment, anger and frustration with the situation they find themselves in. We understand that they want a safe and reliable electricity supply but we recognise they remain deeply concerned about whether they can afford to pay for it.

Communities in Central Otago and Queenstown Lakes, in particular, have made it clear they do not have any trust or confidence in Aurora to deliver what it says it will. Individuals and businesses told us of their concerns about subsidising Dunedin and their desire for Aurora and its owners to be held further accountable for past failures.

These grievances and concerns are understandable. However, we have already taken Court action to prosecute Aurora for breaching its reliability standards, for which it was fined $5 million. It will also be unable to recover from its customers around $40 million of the expenditure it has undertaken from 2017 to the start of the CPP.

This CPP process cannot relitigate those historical failings, decide who can and cannot own Aurora's assets, or direct its management on how to run its business. It is our responsibility to assess Aurora's application and its accountability within the legal framework set out in Part 4 of the Commerce Act and the regulatory rules we must abide by.

Ultimately, this requires us to assess whether its investment plan is well-justified, and if its spending will be efficient. We are required to look forward and focus on the long-term benefits to consumers from a safe and reliable network, rather than whether now is the right time to require consumers to pay more for their electricity supply.

The CPP is the mechanism available within New Zealand's regulatory framework through which lines companies can seek additional funding to undertake substantial and necessary work, whether that is to grow or fix their network. In our view Aurora has made the case that without this CPP its network would continue to deteriorate and result in worsening outcomes for its customers – particularly in the reliability and quality of its electricity supply.

The expenditure is needed and will result in significant price rises. However, our assessment has found areas where we did not think expenditure was justified or could be delayed into the future. As a result, our draft decision would allow for lower levels of spending than Aurora has applied for, which would reduce the impact on consumers' energy bills.

Consumers facing higher bills resulting from increased expenditure will want to be confident that Aurora is spending their money wisely, and that it will consider the needs of different communities when planning its work. Alongside our draft CPP decision, we are also announcing plans for a wider range of measures to improve Aurora's accountability to different communities across it network, and to us.

The information disclosure requirements we are planning would include requiring Aurora to publish an Annual Delivery Report, detailing its progress against its plan, and present it to customers in each of its three regions. In addition, we want to improve Aurora's reporting on the quality of its services and its transparency around how it calculates its regional prices.

Together, our CPP draft decision and planned reporting requirements present a package of measures that we consider would help improve Aurora's performance over time.

We welcome feedback on our response to Aurora's plan, and Commission staff will shortly be heading to Alexandra, Cromwell, Dunedin, Queenstown and Wanaka to hear directly from these communities once more.

Kind regards

Sue Begg
Deputy Chair

John Crawford
Associate Commissioner

Derek Johnston
Commissioner

Elisabeth Welson
Commissioner

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Executive summary

X1 On 12 June 2020, Aurora Energy Limited (Aurora) filed an application for a customised price-quality path (CPP) to increase its regulated revenues in order to repair its electricity lines network and recover the cost of its spending from its customers.

X2 This paper details the package of measures we are proposing in response to Aurora's application, including our draft decision on its CPP and some broader requirements to improve its accountability to customers across its network.

X3 Aurora is subject to price-quality regulation under Part 4 of the Commerce Act. This means that we determine the maximum revenue it can recover from its customers and the minimum quality standards – measured in terms of the number and duration of outages on its network – it must meet. As with all lines companies, we can also impose additional requirements on Aurora in terms of information and engagement.

X4 Until now, Aurora has been on a default price-quality path (DPP). The DPP is the standard regulatory assessment we undertake every five years for larger lines companies, based on their previous performance and spending forecasts.

X5 As a result of historic underinvestment, the safety and reliability of Aurora's network has deteriorated significantly in recent years. This resulted in Aurora breaching the quality standards we had set it between 2016-2019, for which we prosecuted it in Court and it was fined $5 million.

X6 Having recognised the deteriorating condition of its network, in 2017 Aurora began increasing its investment and maintenance spend to urgently address safety risks. It subsequently filed an application for a CPP as it believes its current DPP will not meet the spending required to continue this work and operate a safe network at current levels of reliability. By applying for a CPP, Aurora is seeking a bespoke price-path based on a close assessment of the current state of its network and proposed investment plan.

X7 Aurora proposed to spend a further $383.3 million over three years, or $609.3 million over five years, to replace ageing infrastructure and run its network. This is around $119.6 million or $177.0 million more respectively than what it would be permitted to recover under the current DPP, which began on 1 April 2020.

X8 We understand the disappointment and anger Aurora's customers hold about the position the business is in. Aurora has nevertheless largely made its case for urgent and ongoing investment in its network. Without this CPP, its network would continue to deteriorate, safety incidents would increase, and customers would experience more frequent and longer outages.

X9 Aurora preferred a three-year CPP period, but we consider a five-year period offers greater long-term benefits for its customers. We have assessed Aurora's plan and our draft decision would lower its proposed spending from $609.3 million to $523.1 million – a reduction of $86.2 million (14.1%). This would be made up of:

X9.1 $315.5 million of the $356.3 million proposed for capital expenditure

X9.2 $207.7 million of the $252.9 million proposed for operating expenditure.

X10 Our draft decision on Aurora's capital spending reflects our view that it has largely made the case for increased investment in replacing old and failing assets. The difference is mostly attributable to the timing of when this work is required. We do, however, consider Aurora has overestimated the amount of money it needs to run its network, which has led us to propose a substantial reduction of $45.3 million (17.9%) in its operating spending.

X11 Our role is to set the maximum revenues Aurora can recover from its customers as a whole – we cannot control how this is priced for individuals or regions. It is open to Aurora to set its prices at any level within the revenue cap we have set. However, if it was to recoup less revenue than it is allowed in any given year, it can recover the remainder (along with interest) at some future date.

X12 In its application, Aurora estimated the impact its spending would have on total monthly energy bills in 2023-2024 compared to 2020-2021 prices. As Aurora's estimates of the price impact did not include GST or inflation. We have adjusted its figures to include these relevant factors and compare them with our draft decision.

Table X1 Estimated total monthly bill price increase ($) as at 2023-2024

	Dunedin	Central Otago and Wanaka	Queenstown
Aurora CPP application (excl GST and inflation)	20.30	30.90	24.10
Aurora adjusted (excl GST and inflation)	32.70	47.30	39.80
Draft Decision	22.20	31.50	22.70
Difference	**-10.50**	**-15.80**	**-17.10**

X13 Our analysis indicates our draft decision would reduce the increase in lines charges by between 30% to 40% compared to Aurora's plan. However, the total increased investment we have allowed, including some already undertaken, would still result in substantial price rises.

X14 We estimate that lines charges alone could increase by around $3 to $13 per month for the majority of Aurora's residential customers from 1 April 2021. This would rise to around $20 to $73 per month by 2026. Depending on usage and where they live, some customers may fall outside this range. As our estimates are based on the capital and operating expenditure draft decisions, any changes to these spending allowances following submissions would flow through to lines charges in our final decision.

X15 Given the state of Aurora's network, we consider that its quality standards should be adjusted to better reflect its likely performance. In practice, we consider Aurora should be capable of meeting targets on the number and duration of network outages that are higher than historical levels up until 2015, but similar to what it has actually been achieving over the past five years.

X16 We also want to improve Aurora's accountability for work across its network. Alongside our draft decision, we are planning a series of measures that would require Aurora to provide greater transparency on the delivery of its plans, the quality of its services and its pricing. This will not be dealt with in the CPP itself, but through a complementary package of information disclosure requirements.

X17 Our package of measures is intentionally focused on the long-term benefit to Aurora's customers. It will take some time, and cost, to put Aurora back on the right track, but Otago consumers will eventually be better off having Aurora invest in the security and reliability of their electricity supply.

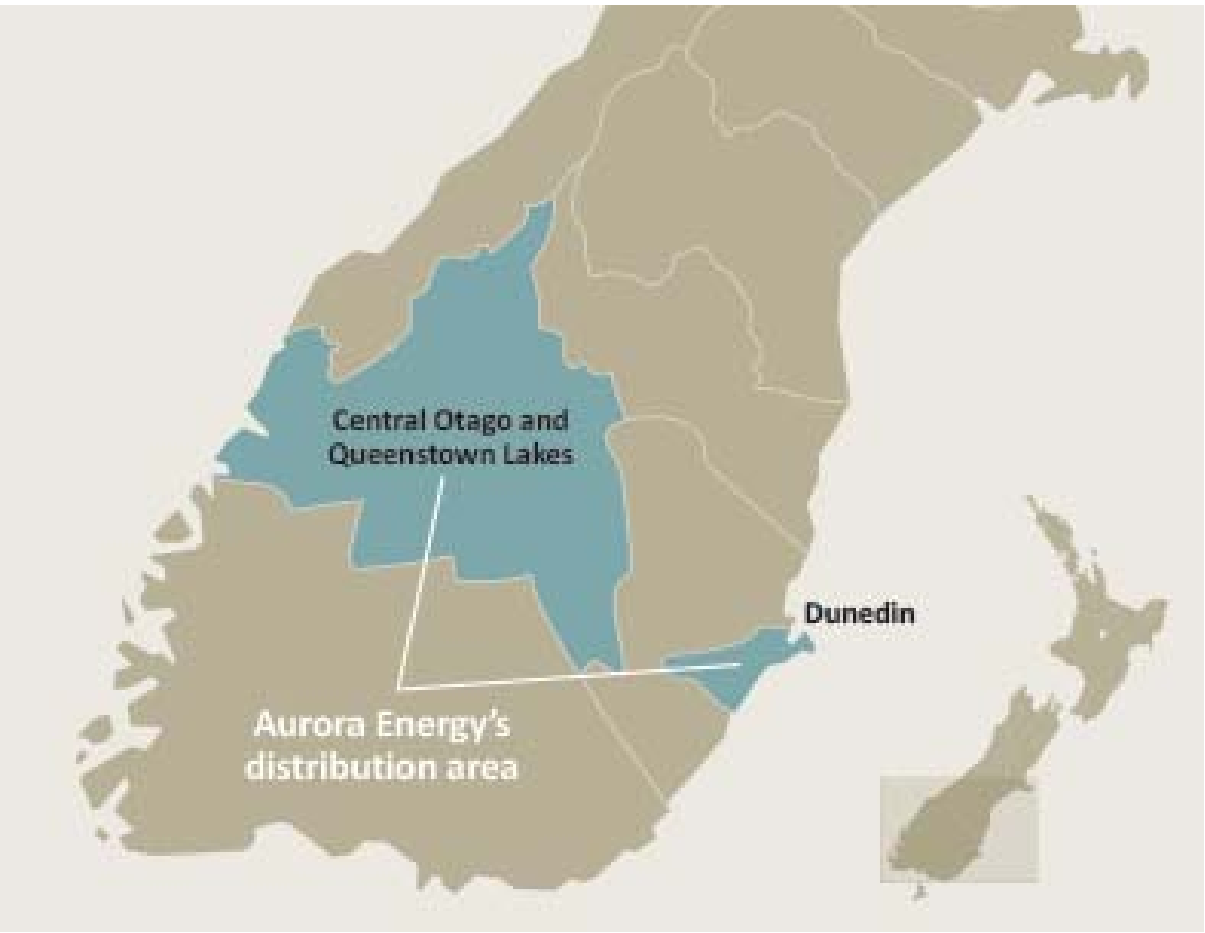
X18 We are now seeking feedback on our draft CPP decision and the overall package. We have arranged a series of public meetings for Aurora's customers and stakeholders before submissions close on 10 December 2020. Our final decision is due by 31 March 2021.

Context of Aurora's CPP

X19 Aurora owns and operates New Zealand's seventh largest electricity lines company by consumer connection numbers. Its network provides electricity lines services to about 90,000 customers in Dunedin, Central Otago and the Queenstown Lakes District.

X20 Aurora is a wholly owned subsidiary of Dunedin City Holdings Limited, which in turn is owned by Dunedin City Council.

Figure X1 Aurora Energy's distribution area



Historic underinvestment

X21 The core of Aurora's network was predominantly built in the 1950s and 1960s. As it has aged, the condition of its assets has deteriorated and the risk to the public and its employees has increased.

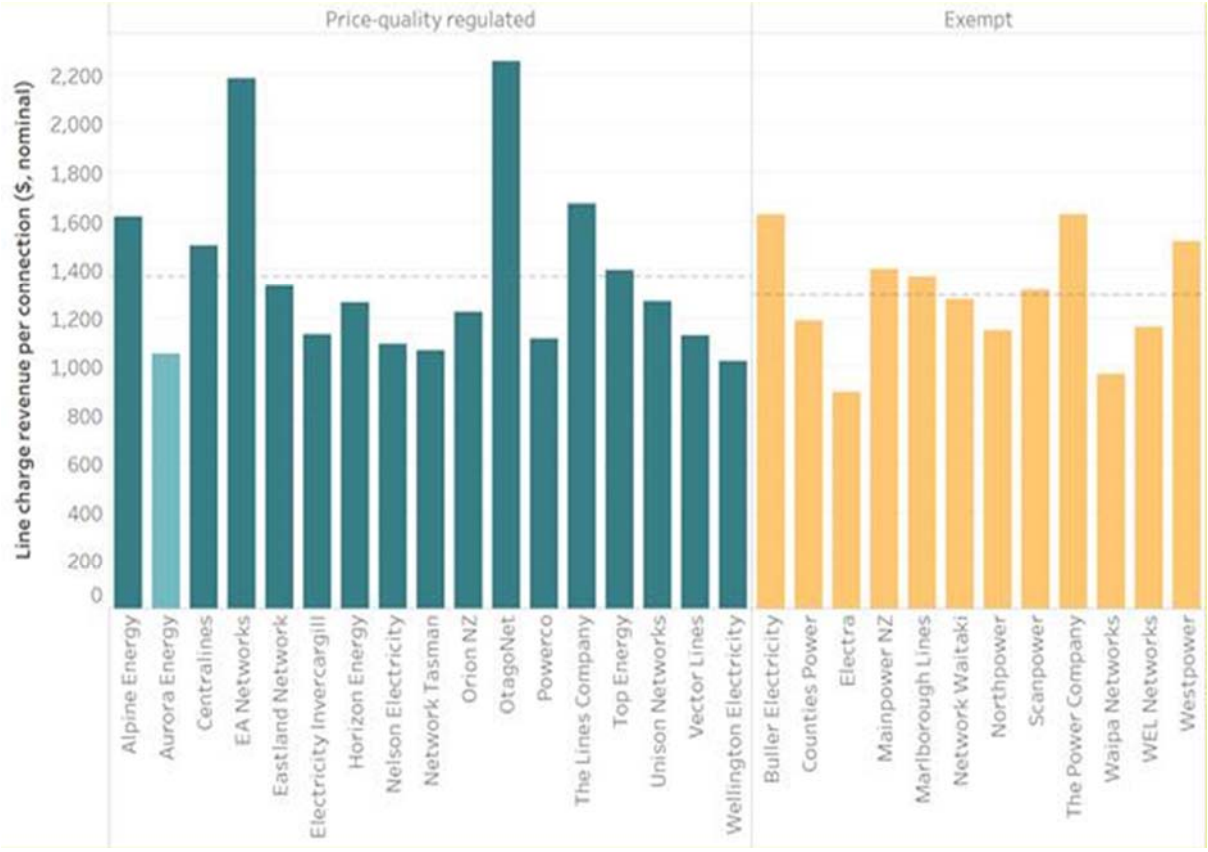
X22 There have been a number of well-documented safety incidents in recent years, including both power poles and live electricity lines falling to the ground. An independent review of Aurora's network identified there were over 300 overhead line, pole and crossarm failures between 2015-2018, of which 61 were classed as serious hazard events.[1]

[1] WSP Independent Review of Electricity Networks – Aurora Network Final Report Table 7.2 p. 48, available at https://www.auroraenergy.co.nz/assets/Independent-Review-Mar-2018/WSP-Final-Report-PS109832-ADV-REP-003-RevD.PDF

X23 Aurora's ageing network has been inadequately maintained due to underinvestment going back many years. As a result, it is providing an increasingly less reliable service to consumers. The average number and duration of outages has risen significantly over the past 10 years and would continue to worsen if action is not taken.

X24 Aurora's level of underinvestment over many years is consistent with its relatively low historical revenues. This can be seen when comparing a snapshot of its revenue on a per customer basis with that of all the other electricity lines companies in New Zealand over the 2013-2019 period.

Figure X2 Aurora's revenue per customer per year 2013-2019 (dashed line is the average)



X25 It is not possible to say what Aurora's prices would have been if it had invested prudently in its network. The nature of a network and the population density and customer mix will also affect the level of lines charges. However, historically, Aurora has had lower lines charges for its customers compared to those paid on average by customers in the 17 price-quality regulated lines companies (approximately $321 per year less than the average across the 17 price-quality regulated lines companies between 2013 and 2019).

X26 Furthermore, Aurora's profit on a per customer basis over the same 2013-2019 period was among the lowest of all lines companies. This implies Aurora has not earned excessive levels of profit from its customers. Rather, it appears its low level of investment enabled it to maintain artificially low prices for its customers over many years.

X27 Aurora could have applied for a CPP at any point over the past decade but did not. As a result, it is in catch-up mode and needs to undertake a significant amount of investment over a short period of time to improve safety and stabilise the reliability of its network.

Aurora's plan

X28 In recent years, Aurora recognised the deteriorating condition of its network and began significantly increasing its investment and maintenance spend to urgently address safety risks. Much of this work was guided by the 2018 WSP state of the network report we encouraged Aurora to commission following our investigation into its quality standard breaches.

X29 Through its CPP application, Aurora has sought approval to increase its prices to cover part of the cost of the additional expenditure to date, but also to fund a continued large expenditure programme from April 2021.

X30 Aurora applied for a three-year CPP as opposed to the five-year default period, as it believed its forecasts that underpinned its application were more robust for the initial three years, compared with years four and five. It signalled it would then make a second application for the following five years, once it had better asset data allowing it to forecast its expenditure more accurately.

X31 In developing its plan, Aurora undertook its own community consultation. This included a series of public meetings, consumer surveys and the publication of a consultation document upon which its customers could provide written submissions on. It also established a Customer Advisory Panel (CAP) to provide an independent consumer voice to help inform its plan.

X32 In its CPP application, by 2023/2024 Aurora estimated its spending plan would result in energy bill charge increases of:

X32.1 11.9% for Dunedin ($20 a month)

X32.2 16.7% for Central Otago and Wanaka ($30 a month)

X32.3 10.6% for Queenstown Lakes ($24 a month)

X33 However, these estimates do not include GST or account for inflation, and so understate the size of the bill consumers will face. Our own analysis of Aurora's estimate and the impact of our draft decision on lines charges is explained in greater detail further below.

Independent verifier

X34 As part of the CPP process we agreed with Aurora to appoint Farrier Swier Consulting and GHD (together, the Verifier) as an independent expert to assess its proposal and provide a report to accompany its application. With the assistance of Strata Energy Consulting, we then tested the verification report and the techniques and methods the Verifier used to assess Aurora's proposal.

X35 Overall, we considered the Verifier's report to be generally robust. It assessed the bulk, but not all, of Aurora's proposal and identified areas it considered we should review further. As a result of our review, our findings are materially different from the Verifier's conclusions in some parts but not in others.

What Aurora's customers told us

X36 Given the scale of Aurora's proposal and likely price impacts, we recognised that it was important for us to engage directly with Aurora's customers and make ourselves and our processes as accessible as possible for them, in order to fully understand their views and concerns.

X37 On 30 July 2020 we released an Issues Paper package describing the key issues we had identified from our initial assessment of Aurora's proposal on which we wanted to hear from stakeholders. We followed this with a series of public meetings with local residents in Dunedin, Alexandra and Cromwell. Planned meetings in Queenstown and Wanaka unfortunately needed to be cancelled due to a sudden change in COVID-19 alert levels and were instead held online.

X38 The feedback we received when talking with stakeholders and residents in Dunedin, Central Otago and Queenstown Lakes broadly covered the same themes and issues addressed in the written submissions we received.

Figure X3 What we heard

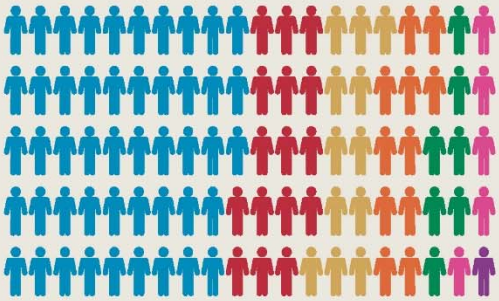
What we heard

Consumer feedback summary

As a result of historic under-investment, Aurora Energy has signalled it needs to spend heavily over the next decade to fix its electricity lines network. On 30 July 2020 we invited New Zealanders to share their views on Aurora's plan to raise its prices for consumers in Dunedin, Central Otago and Queenstown lakes in order to fund a proposed $383 million investment in its network over three years, or $605 million over five years, starting in 2021.

During our consultation process we met with residents in Dunedin, Cromwell and Alexandra and due to COVID-19 restrictions held online sessions for Queenstown and Wanaka. We received over 150 further written submissions. These are the key themes consumers raised.

Issues raised



Pricing 48% **Accountablity** 16% **Quality of service** 12%
Consumer consultation 11% **Asset management** 7%
Capital expenditure 6% **Operating expenditure** 1%

Aurora's customers generally accepted that money is needed to be spent on restoring the safety and reliability of the lines network, but they felt reliability standards shouldn't be relaxed

- Unplanned outages and voltage issues are having a significant impact on business activities (eg, fruit growers experiencing a power cut on frosty evenings) and many people wanted improved reliability
- Aurora's request to allow for an increase in unplanned outages while it repairs its network should be rejected given it under invested in the network
- The Commission must ensure that Aurora prioritises work that will most improve the safety and reliability of the network first and is not just the easiest to complete
- Aurora should find another way to fund the work so consumers don't foot the bill – such as raising equity, taking on a loan, or even selling parts of or the whole network to a new owner
- Reliability was important in one of the coldest regions of the country where air-quality regulations meant more people would have to rely on heat pumps as their only source of heating

> "Many businesses cannot accommodate even planned outages without significant disruption to their operation... It is vital that any planned outages are accurately adhered to, unlike recent experiences"

Stakeholders said Aurora's estimated price increases were significant and some residents believed the potential impact on their own power bills would actually be much higher

- The economic impact of COVID-19 had badly affected the region and increased prices would put further pressure on household finances
- Many residents were on fixed incomes and could not afford a substantial rise in their electricity bills
- Increased prices would affect local businesses competitiveness and discourage residents from switching to more environmentally friendly heating options like heat pumps
- It would be preferable to spread the cost over a longer period to reduce the bill shock

> "The number of consumers in a position to change their demand in the next one to two years and hence materially lower costs for all other consumers is likely to be small relative to the majority of consumers that will be facing greater economic hardship than this time last year as the effects of COVID-19 on the wider economy bite"

COMMERCE COMMISSION NEW ZEALAND
Te Kamihana Tauhokohoko

Regional differences in price were difficult to understand and some felt it was unfair that Dunedin had lower charges

- Lines charges and price increases should be shared evenly across all three regions
- The Commission should review the costs and set the maximum revenue Aurora can recover from each region separately
- Dunedin City Council has benefited from dividends that should have been invested in the lines network and it is unfair for consumers in other regions to be forced to pay the price
- Aurora's owners should not be allowed to take any profit from the company for the foreseeable future

> "Clearly Aurora have a disincentive to raise charges in Dunedin. The citizens are, in fact, the owners of the company... In Central Otago however there are no company owners, there is no competition and there are no drivers to hold down prices"

A lack of accountability for past failures has resulted in low trust in future delivery

- The Commission did not act early enough on Aurora's failings and needs to do more to prevent this from occurring again
- Consumers have no confidence that Aurora can or will deliver on its current plan, or do it efficiently to minimise the costs on consumers
- Aurora needs to improve its communication with the communities it serves, particularly about when and why the power will be turned off for maintenance
- There need to be strict reporting requirements on Aurora so consumers are clearly informed about what they are getting for their money and when it is being delivered by

> "I have no confidence that the existing ownership, governance, management and engineering personnel have shown any aptitude to make wise engineering decisions or ability to manage funds"

Next steps

The views expressed above formed part of the evidence we considered when making our draft decision and are detailed further in Chapter 4 of our report. We will be undertaking further consultation on our draft decision, including holding sessions in Cromwell, Alexandra, Wanaka and Queenstown from 23-26 November and in Dunedin on 1 December 2020. See our website for more details on those events and how you can have your say. Written submissions on our draft decision close on 10 December.

X39 During consultation we received a range of views, not all of which we could take into account or act on as part of the CPP process. In assessing submissions, we broke down the issues raised into three broad categories:

X39.1 issues we can deal with using the mechanisms and tools that are provided for under the CPP regime;

X39.2 issues within our responsibility that cannot be dealt with using the mechanisms and tools available to us under the CPP regime, but can be managed using our other powers and tools at our disposal (such as information disclosure); and

X39.3 issues that are outside our control and are more for other government agencies, the government itself or other non-government entities.

X40 The core issues raised in submissions that we can deal with during this CPP process are detailed further below in our draft decisions.

What we cannot do

X41 Submitters raised a number of issues during consultation that, although relevant to Aurora's business activities, sit outside our responsibility or ability to address.

Table X2 Issue raised and responsible entity

Issue	Responsible
Regional pricing	Electricity Authority
Price increase for distributed generation	Electricity Authority
Ownership contribution to network rebuild	Dunedin City Holdings and Dunedin City Council
Electricity market structure	The Government (via MBIE)
Health and safety practices	Worksafe NZ

X42 Three issues in particular were raised frequently with us during the public meetings and in written submissions. These were:

X42.1 affordability of price rises

X42.2 Aurora's ownership

X42.3 regional pricing differences.

Affordability

X43 Submitters told us the proposed price rises would impose financial stress on many of Aurora's customers and was especially problematic for those on fixed incomes who may already be struggling due to the impacts of Covid-19 (notably super annuitants and those on welfare).

X44 Price rises would also create difficulties for a region that has cold winters and is increasingly reliant on electric heating for air-quality reasons. They could also potentially harm the competitiveness and viability of some commercial customers who feared they would face large price rises at a time of reduced demand in the economy.

X45 We accept the communities' concerns about the potential financial impact of price rises on individuals and businesses and understand that some consumers are worried that their income cannot stretch to cover a price rise. However, we have limited ability to address affordability and energy poverty issues as part of the CPP process or through our wider powers under the Commerce Act.

X46 We are required to assess the facts of Aurora's application: whether its proposed spending is necessary, efficient and in the best long-term interests of consumers. To the extent we are able to take considerations of price shocks and affordability into account, we have done so, such as smoothing revenue over time.

X47 We set the maximum revenues Aurora can recover from its consumers as a whole but cannot control how this is priced for individual customers. It is open to Aurora to assess affordability in any price increases it may wish to implement. But there is a cost to its customers in doing so, as ultimately Aurora can recover these deferred revenues (along with interest) at some future date.

Aurora's ownership and governance

X48 Many submitters felt that Aurora's owners should bear most of or all of the cost of fixing the network. They considered this could be achieved by requiring the owners to take out a loan, pay back past dividends or sell part of the network and use the funds obtained to pay for the repairs. Some submitters further argued that as Dunedin customers owned the network, via Dunedin City Council, only they should pay.

X49 Under Part 4 of the Commerce Act we can only regulate Aurora's operation as a lines company. We do not have the power or ability to decide who owns a lines company or direct the owners on how to manage or invest in their business. These matters are ultimately for the owners, Dunedin City Holdings and Dunedin City Council.

Regional pricing differences

X50 Aurora divides its network into three regions for the purposes of charging its customers: Dunedin, Central Otago and Queenstown Lakes. Submitters raised several concerns about the fairness of this pricing approach, with residents in Central Otago and Queenstown Lakes saying they believe they are already subsidising Dunedin and expect it to get worse.

X51 The responsibility for network pricing lies primarily with Aurora with oversight of another regulator, the Electricity Authority. It is aware of these concerns from its participation in the public forums.

X52 We do consider that Aurora should be required to explain its pricing approach and regional calculations to its customers in different parts of its network through our information disclosure requirements.

Our proposed package

X53 The core aspects of Aurora's application that we consulted on, and which we provide further detail on here, include:

Under the CPP

X53.1 the length of the CPP period;

X53.2 allowable revenue and price smoothing;

X53.3 capital expenditure;

X53.4 operating expenditure;

X53.5 service quality and reliability.

As part of the wider package

X53.6 accountability and delivery.

X54 Having reviewed Aurora's proposal, and assessed it against the framework and evaluation criteria set out in the rules and legislation that apply to us (which includes considering stakeholder views), we accept that the majority of Aurora's proposed investment is prudent and necessary to fix its network.

X55 While our draft decision would reduce the amount of expenditure Aurora can recover over the next five years, compared to what it proposed, it will still result in substantial price rises for its customers.

Five-year CPP

X56 Although Aurora requested a three-year CPP period, our analysis of its proposed service quality and expenditure led us to consider that the default five-year period would better meet consumers' interests over the longer term.

X57 Where there may be uncertainty with Aurora's forecasts in years four and five, primarily around capital expenditure needs, we are proposing to put contingency mechanisms in place that manage the risk of setting the revenue too low by providing some flexibility to deal with changing circumstances.

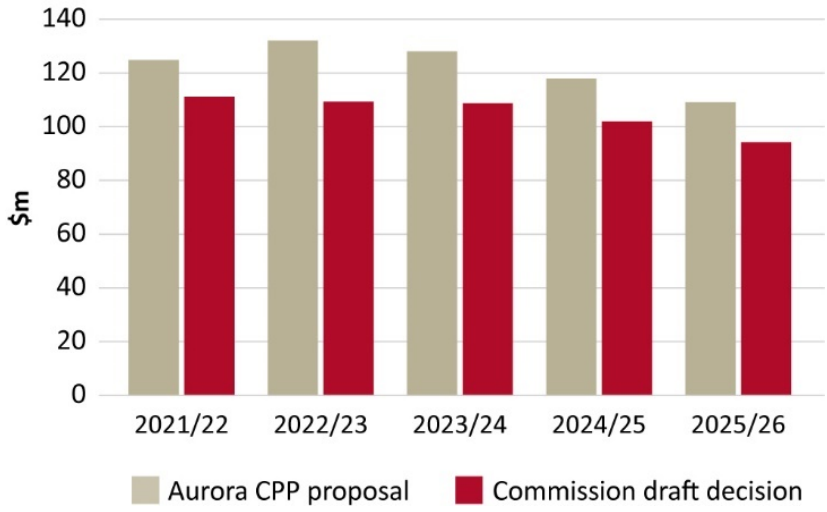
X58 In our view, a five-year period best meets the purpose of Part 4 of the Act and provides greater certainty to both Aurora and its customers to plan for the impacts of this investment.

Allowable revenue and price smoothing

X59 Aurora proposed to spend $609 million to fix and operate its network over the next five years, which would need to be recovered through an increase in its lines charges.

X60 Our draft decision would reduce Aurora's expenditure to $523.1 million over the five-year period. The difference for each year of the CPP period is shown below:

Figure X4 Aurora's total proposed expenditure



X61 As mentioned, Aurora estimated the regional price impact of its plan would range from $20 to $30 per month by 2023-2024. This estimate was based on a three-year CPP and did not fully include GST or account for inflation. Aurora did, however, signal further price increases would be required in the future through a second CPP application.

X62 In addition to the revenue we would allow Aurora to recover during the CPP period, we must also account for what it is already spending to fix the priority issues it has identified in its network.

X63 Over the past five years most recent regulatory period (2015-2020), Aurora has spent considerably more than its approved expenditure allowance under the DPP, to repair its network and replace assets including poles, overhead lines and transformers.

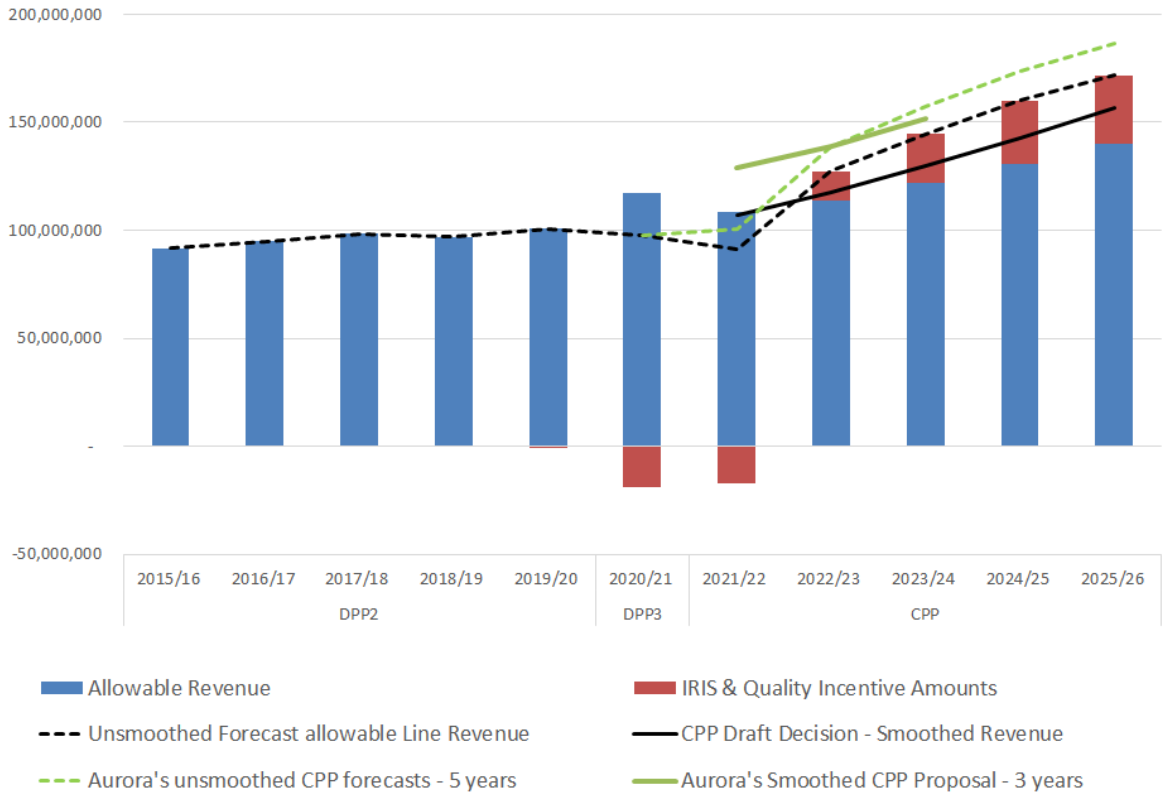
X64 It did so ahead of our decision on its CPP as it had identified work that needed to be actioned immediately and kept us informed of its progress to address its network restoration.

X65 Where an electricity lines company spends more than is set out in its DPP allowance, the price-quality regulatory regime requires it to absorb some of that extra spend itself. However, to ensure it does not delay necessary work, it is entitled to recover the greater part of this expenditure from its customers in future years.

X66 In the case of Aurora, we have estimated that over time it can recover $136 million of its approximate $174 million overspend. Aurora proposed to defer recovering parts of this spending (shown as *IRIS and Quality Incentive Amounts* in the graph below) immediately and instead spread it over eight years. This would have left $32 million to be recovered beyond the CPP period.

X67 We agree with the intent of what it has proposed, but have taken a different approach using a combination of mechanisms available to us to achieve a similar effect and smooth price impacts for consumers. The impact of our draft decision on Aurora's proposed allowable revenue is shown in Figure X5.

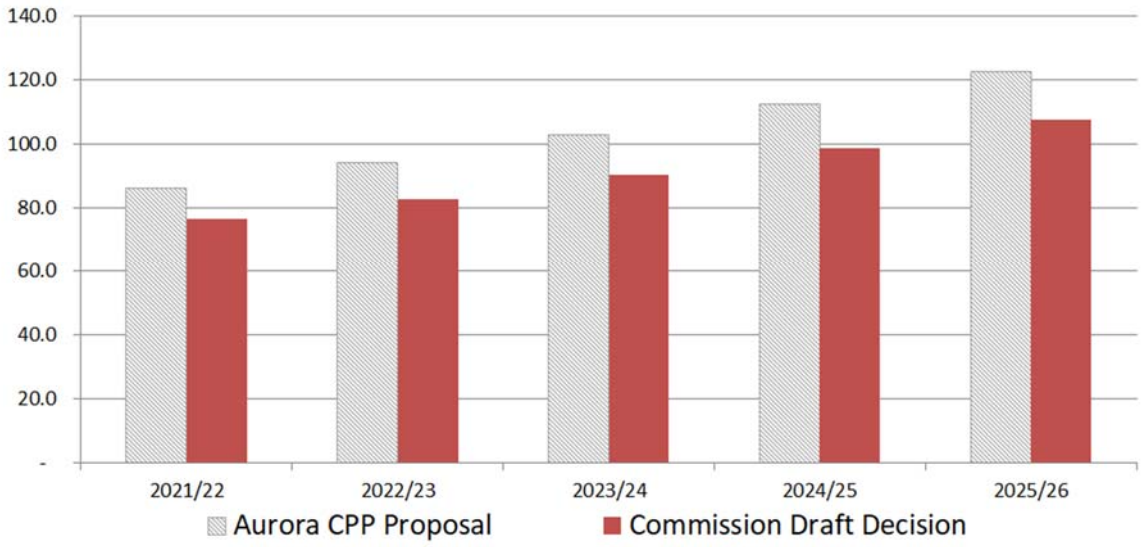
Figure X5 Forecast allowable lines charge revenue $



X68 As part of our consultation process, we sought feedback from Aurora's customers on options for managing the impact of increased lines charges on their electricity bills. Consumer views were balanced on how to manage the impact, with a slight preference for price rises to be spread over a longer period to reduce the immediate bill shock.

X69 Our draft decision is to 'smooth' Aurora's revenue into the future, which would see it increase by no more than 10% every year of the CPP period starting from 1 April 2021. Cumulatively, we estimate that by 2026 lines revenue would increase by 54% for Dunedin, 76% for Central Otago and Wanaka, and 60% for Queenstown Lakes.

Figure X6 Proposed net allowable revenue $m (excl transmission and IRIS)



X70 The 'smoothing' approach to setting Aurora's maximum allowable revenue would not account for all of its recoverable expenditure during the CPP period. Approximately $8.8 million of revenue, in addition to the $32 million proposed for deferral by Aurora, would need to be recovered in subsequent years.

X71 While we cannot specify Aurora's pricing methodology, we modelled several scenarios based on its current pricing approach to estimate the likely impact on consumers. We also instructed independent experts, Castalia, to review our methodology for accuracy.

X72 Taking into account the five-year period, GST and inflation, our estimates are materially different to what Aurora consulted on and the impact on consumers is significantly greater.[2]

X73 We have adjusted Aurora's 2023-2024 estimate in its application to include these additional factors and provide a comparison with our draft decision, as shown in the table below:

[2] There are also a number of factors outside of the scope of the Commission's decision that mean the prices consumers experience in reality will differ from our estimates. For example, wholesale or generation costs may fluctuate due to market conditions, and we only control the network revenues Aurora may recover from its customers. It may choose to recover this revenue across its customer base how it sees fit (and this may mean higher or lower prices for different consumers).

Table X3 Estimated total monthly bill price increase ($) as at 2023-2024

	Dunedin	Central Otago and Wanaka	Queenstown
Aurora CPP application (excludes GST and inflation)	20.30	30.90	24.10
Aurora adjusted to include GST and inflation	32.70	47.30	39.80
Draft Decision	22.20	31.50	22.70
Difference	**-10.50**	**-15.80**	**-17.10**

X74 The following graphs show the estimated average prices in dollar terms for low, medium and high residential electricity users for each of Dunedin, Central Otago and Wanaka, and Queenstown Lakes for the five years of the CPP when compared to 2020-2021. These are estimates of the lines (distribution and transmission) charges alone.

Figure X7 Dunedin Residential Annual Lines Charges

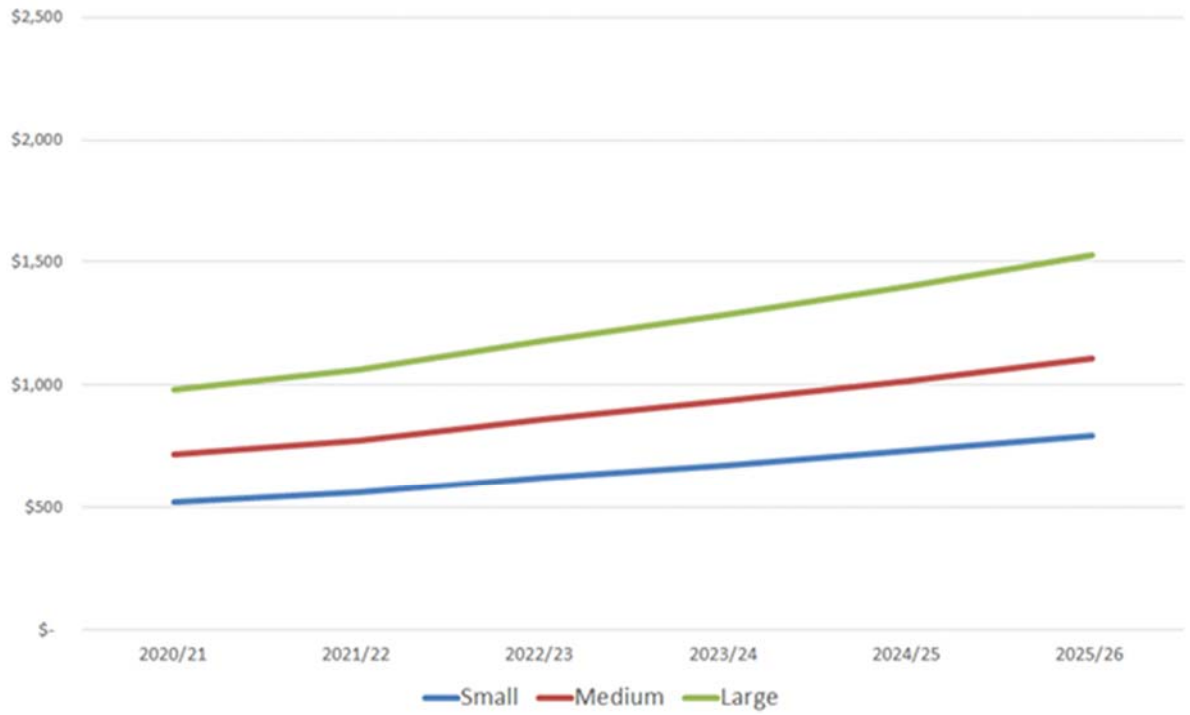


Figure X8 Otago Residential Annual Lines Charges

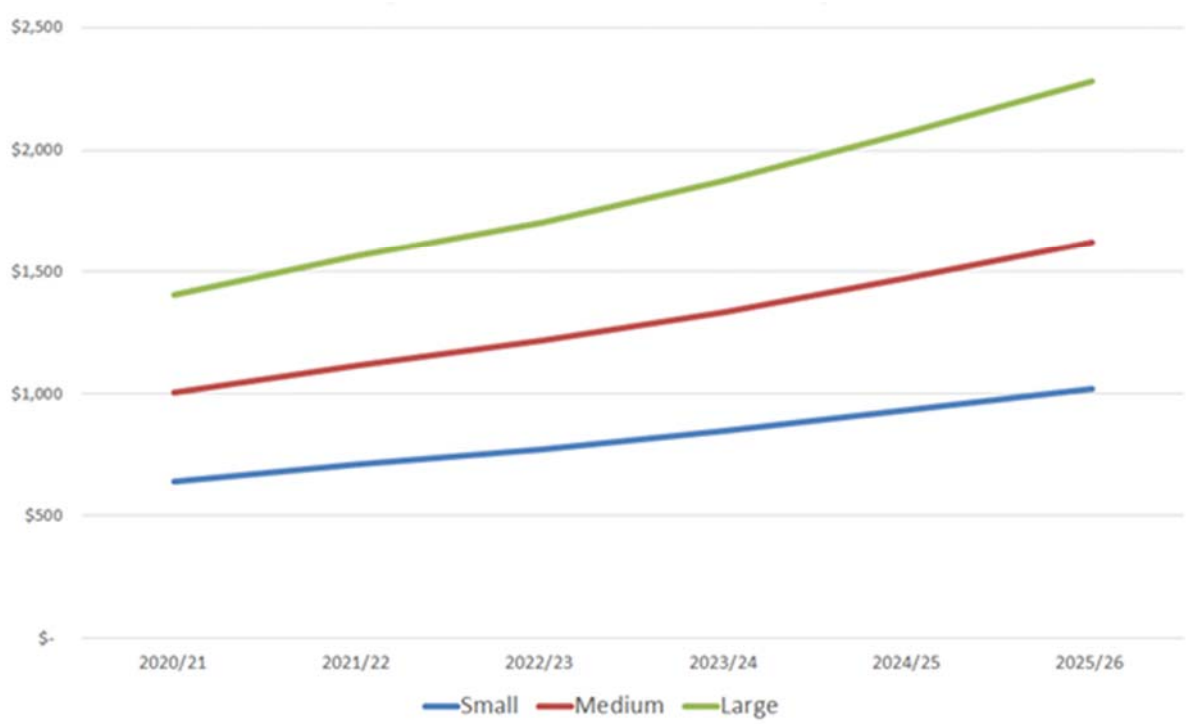
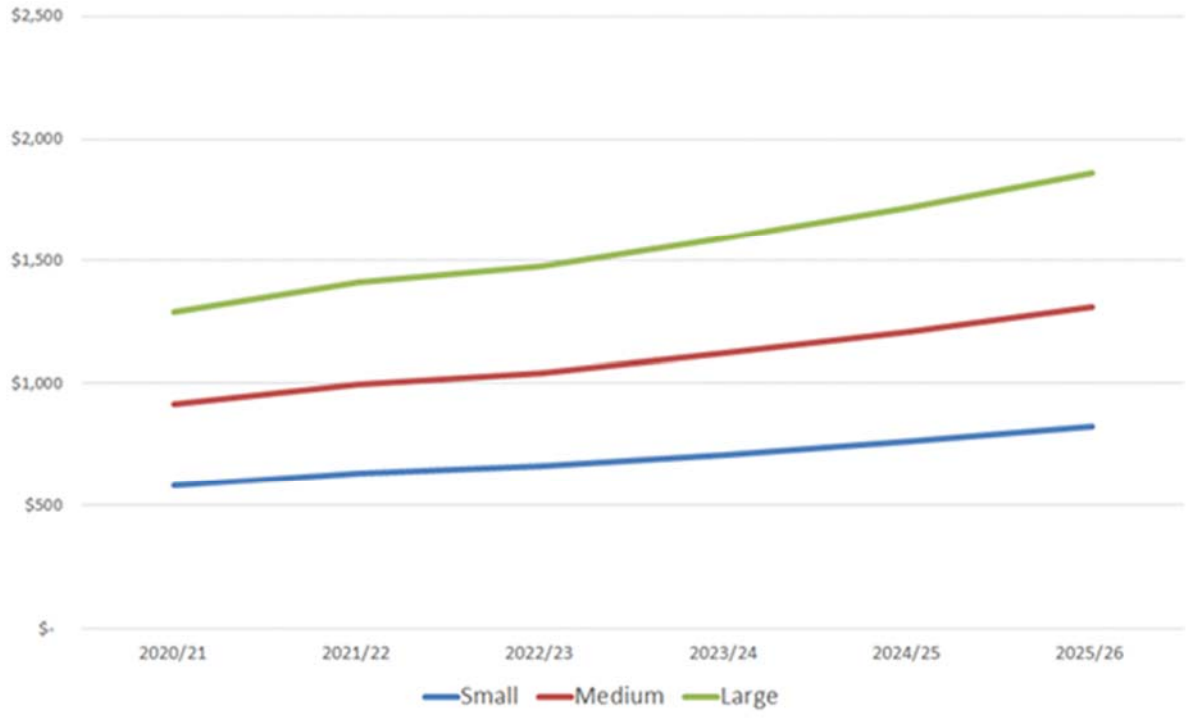


Figure X9 Queenstown Residential Annual Lines Charges



X75 Using these same numbers along with forecast retail electricity prices, we estimate the impact on the average total residential energy bill would be 3.1% for Dunedin, 5.2% for Central Otago, and 3.5% for Queenstown Lakes from 1 April next year. This would rise to 24%, 31% and 20% respectively by 2026.

Alternative scenario

X76 An alternative scenario we can consider is to raise revenues immediately by 5% in the first year, with increases of 10% for each of the next four years.

X77 As an example, the difference between our draft decision (Scenario 1) and the alternative scenario (Scenario 2), is shown below for a medium residential electricity user. These values are not additive in the sense that each number is the price increase relative to 2020-2021.

Figure X10 Comparison between Scenario 1 and 2 of residential monthly line charges

Increase in Residential Monthly Lines Component relative to 2020/21 - Medium Consumer Profile

Scenario 1	2021/22	2022/23	2023/24	2024/25	2025/26
Dunedin	$ 4.70	$ 11.60	$ 18.10	$ 24.90	$ 32.40
Central Otago	$ 9.40	$ 17.50	$ 27.50	$ 39.10	$ 51.30
Queenstown	$ 7.10	$ 10.80	$ 17.40	$ 24.80	$ 33.00
Scenario 2					
Dunedin	$ 2.10	$ 8.70	$ 14.90	$ 21.40	$ 28.60
Central Otago	$ 4.20	$ 11.90	$ 21.50	$ 32.50	$ 44.10
Queenstown	$ 3.40	$ 6.80	$ 13.10	$ 20.20	$ 28.00

X78 Under Scenario 2, Aurora's customers would pay less upfront, which may be desirable at this time. However, it would result in $38.5 million needing to be recovered after 2025-2026 and would likely keep lines charges higher for longer. Consumers would end up paying an extra $9.6 million over time under this scenario, when accounting for inflation and interest costs.

X79 We also considered spreading the cost over a longer period but this would have the effect of increasing bills for longer and affecting Aurora's cashflow, which in turn may affect its ability to invest in its network.

X80 Our initial preference for Scenario 1 reflects our concern that a substantial amount of revenue could be pushed into a potential second CPP application, beginning in 2026/2027, or the DPP. Inflation and interest costs could also increase and add to the overall cost burden on Aurora's customers for a longer period.

X81 We are acutely aware of the significant impact Covid-19 and the economic slowdown has had on the Otago region, given its drawcard as a tourism destination. With the national economy in recession, and international visitor flows down to a trickle, the path to economic recovery in Otago is uncertain. The price increases required to fund Aurora's additional expenditure have come at a difficult time for Otago consumers.

X82 We acknowledge that these estimated price rises are substantial for Aurora's customers and want to discuss our smoothing scenarios further with them during consultation on our draft decision.

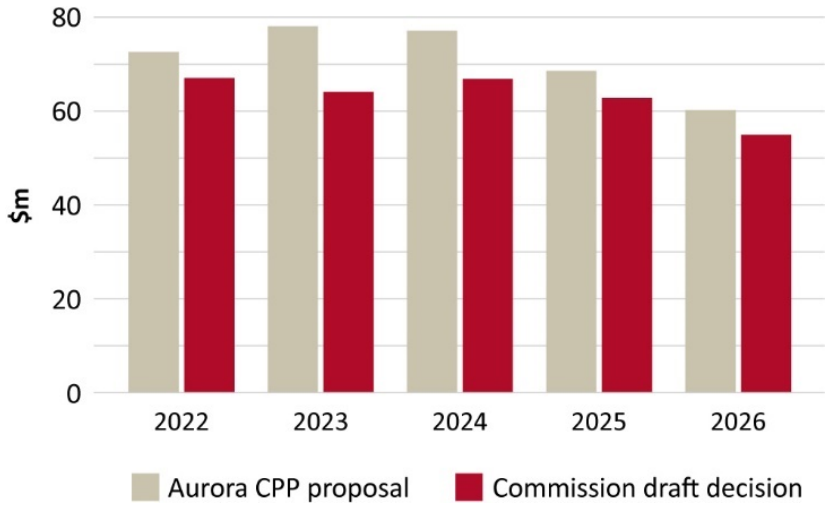
Capital expenditure

X83 Capital expenditure is recovered over the life of an asset, which in an electricity lines network typically ranges from 25 to 70 years. Only a proportion of Aurora's capital expenditure will be recoverable during this CPP period, with the full impact becoming clearer when we set its next price path.

X84 Aurora forecasts it would spend $356.3 million to replace ageing assets and invest in the growth of its network over the coming five years. Its customers and stakeholders generally accepted that some investment was necessary.

X85 Our draft decision is to reduce this forecast expenditure by about $40.9 million (11.5%). This would allow $315.5 million.

Figure X11 Forecast capital expenditure



X86 Table X4 below provides a breakdown of the capital expenditure proposed by Aurora compared to our draft decision by category.

Table X4 Capital expenditure breakdown

Expenditure category	Aurora proposal $m	Draft decision $m[3]
Asset renewals	281.8	258.4
Network growth and security	30.3	16.2
Other network capex	29.1	25.6
Non-network capex	15.2	15.2
TOTAL	356.3	315.5

X87 Overall, we consider Aurora has largely justified its capital spending proposal. The major reductions we have identified largely relate to growth and network security projects that we consider may not be needed, or can be deferred, due to the demand uncertainty stemming from Covid-19, along with some general efficiency savings.

X88 To address some of the unapproved spend, we are proposing two reconsideration mechanisms that would allow Aurora flexibility to apply for additional during the CPP period. Aurora may apply to us to include approval of expenditure for:

X88.1 Work that is dependent on Aurora's network; and

X88.2 Work that may be required due to risks relating to the condition of the network.

X89 We consider this is an appropriate safeguard to prevent a lack of capacity on Aurora's network constraining economic recovery.

Operating expenditure

X90 Aurora forecasts it would need $252.9 million of operating expenditure, which would all be recovered from its customers over the five-year CPP period. It considered this funding would, among other things, primarily enable it to move from a reactive to a proactive maintenance approach and improve its internal capabilities to implement its investment plan.

X91 During consultation, stakeholders and consumers highlighted, among other things, staff and executive salaries, vegetation management practices and general capability concerns that they felt could affect Aurora's operating costs.

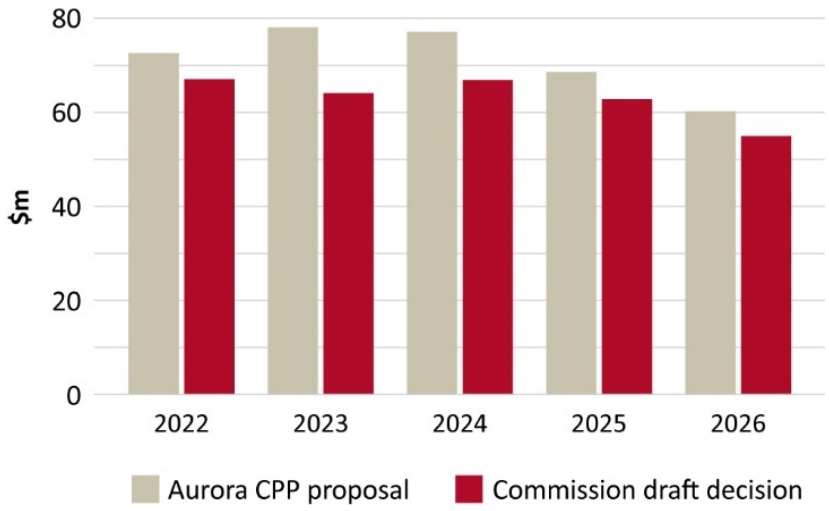
[3] Excludes capital contributions and any capex associated with Right of Use assets

X92 The Verifier reviewed 92% of Aurora's operating expenditure programme and highlighted several key issues it considered we should investigate further.

X93 Our draft decision is that we should cut operating expenditure by $45.3 million and allow Aurora to spend $207.7 million of the $252.9 million it proposed – a reduction of 17.9%.

X94 The draft annual operating expenditure allowance compared to what Aurora forecast is shown below.

Figure X12 Forecast operating expenditure



X95 The breakdown of this spending is summarised as:

Table X5 Operating expenditure breakdown

Expenditure category	Aurora proposal $m	Draft decision $m[4]
Preventive, Corrective & Reactive Maintenance	70.3	69.4
Vegetation Management	21.2	16.1
System Operations and Network Support (SONS)	80.4	55.4
People costs	40.3	27.1
IT Opex	17.0	17.0
Premises, Plant and Insurance	5.1	5.1
Governance and Administration	15.6	14.5
DER Upper Clutha	3.0	3.0
TOTAL	252.9	207.7

X96 Our draft spending reductions in operating expenditure reflect the fact that we do not consider all of Aurora's forecast spending was efficient or necessary for the size of its business. For example, on a relative basis, it planned to spend $11 million more than Powerco received under its CPP proposal on system operations and network support (SONS). This is despite Powerco having a network that is four and a half times longer than Aurora's, which would require higher staffing needs to operate.

X97 We have also outlined spending reductions in Aurora's broader staffing levels and identified that the vegetation management unit rate appeared to be significantly higher than other lines companies.

X98 We further consider that Aurora should become more efficient over time, which would lead to general cost savings across the CPP period.

Service quality and reliability

X99 Power outages and voltage issues are a major inconvenience for consumers, particularly businesses. Aurora's customers told us that the quality and reliability of their supply were of significant concern to them. They did not necessarily want to pay more for improved reliability, but they also did not accept it should be allowed to deteriorate further.

[4] Excludes operating lease costs

X100 Aurora requested we relax the quality standards it is currently subject to under its DPP to better reflect the state of its network. In its application, it forecast longer and more frequent unplanned outages compared to the 2016-2020 period and also expected planned outages to increase so that it can undertake network replacement.

X101 While Aurora asked us to amend its unplanned outage targets to more achievable levels, it has not sought a more lenient planned outage standard. This is partly because it expects it can significantly improve how it notifies its customers of planned outages so that it stays within its current standard.

X102 In our view, the level of investment Aurora will be undertaking should enable it to perform better than it has proposed. Under our draft decision, Aurora would be subject to a package of quality measures we consider are realistically achievable given the current state of its network, and provide incentives for it to improve the quality of its supply.

X103 We have set draft unplanned outage targets at levels that broadly reflect Aurora's performance over the past five years. Aurora would face financial penalties if it misses the standards we set it, and rewards if it outperforms them.

X104 We have accepted its proposal to maintain the standards that it currently faces for planned outages. We are satisfied it reflects the scale of work required to be undertaken on the network, while also incentivising Aurora to improve its notification of outages and minimise cancellations at short notice.

X105 Overall, our draft decision would mean that Aurora's customers could expect the reliability and quality of their electricity supply to stabilise at today's levels, before gradually improving over time.

Accountability and delivery

X106 A recurring theme of submissions on our Issues Paper package, and feedback received during public meetings, was that Aurora's customers do not trust it to deliver what it says it will. Aurora itself has acknowledged it has work to do to restore faith in its business and improve how it communicates with its communities.

X107 With a work programme of this scale, a key risk is that priority maintenance and asset replacement is not undertaken quickly enough, which could affect the quality of supply for customers. Aurora has already taken steps to mitigate this risk and improve its ability to deliver, which are detailed in its CPP proposal and backed-up by the Verifier's report.

X108 These steps include assessing its resource requirements and access to specialist technical services. It has brought on two additional providers – Unison and Connetics – to undertake field work alongside Delta, and can call on other approved contractors for further labour resources as needed.

X109 Internally, Aurora had also set up a Planning and Work Delivery design team for a 12-month period to June 2020 focussed on creating and implementing the right processes to support project delivery.

X110 Given these measures, our focus has turned to how we can best hold it accountable for delivering against its plan and improving performance in the longer term.

X111 To provide us, customers and other interested parties with the information needed to assess its progress and performance over time, we are planning a series of wider measures to improve Aurora's accountability alongside the CPP draft decision.

X112 To commence that process, we have set out our current thinking on the issues and how we plan to address them.

X113 The new measures we are planning would require Aurora to:

X113.1 Produce an Annual Delivery Report (ADR), which will compare what it has delivered against what it said it would deliver broken down by individual region, and present it to customers in each of Aurora's three regions;

X113.2 Disclose information to customers annually on the quality of services (including monitoring and reporting by Aurora on voltage quality on its LV network), regional pricing and improvements in asset management, project quality assurance, data collection and quality, and cost estimation processes; and

X113.3 Procure, with our prior agreement, an independent expert report (during Year 3 of the CPP period) on progress in some of the more complex areas of the above requirements to provide us and stakeholders across its network with additional assurance that it is delivering benefits to its customers over time.

X114 Aurora also has an existing consumer charter and compensation policy and plans to consult on potential improvements. We welcome the existence of these policies and think they can improve the relationship between lines companies and their customers.

X115 We are proposing to require Aurora to publicly report on its performance against the existing commitments and how it has consulted with its customers on changes to its charter commitments and compensation scheme. We also propose to require Aurora to take action to ensure its customers are aware of the scheme.

X116 We intend to release our draft decision on Aurora's information disclosure requirements for consultation at the same time as we publish our final CPP decision in March 2021.

We want to hear from you

X117 We want to hear and consider the views of Aurora's customers and other stakeholders on our draft decision and its components. This will assist us make a final decision on Aurora's CPP and our proposed package of wider measures that promotes the long-term benefits of consumers.

X118 To give us time to consider submissions and meet our statutory timeframes for setting Aurora's CPP, we ask that we receive emailed submissions by 10 December 2020 and cross submissions, following publication of responses on our website, by 23 December 2020.

X119 We will consider all submissions received by these dates in reaching our final decision on Aurora's CPP.

X120 Please email your submission to feedbackauroraplan@comcom.govt.nz with 'Aurora CPP draft decision' in the subject line of your email. All submissions will be published on our website, unless you indicate that your submission, or parts of it, are confidential.

Chapter 1 Introduction

1.1 This paper sets out our draft decisions relating to the customised price-quality path (CPP) proposal made to us by Aurora Energy Limited (Aurora) on 12 June 2020. It also sets out draft policy decisions on additional information disclosure (ID) requirements we consider should apply to Aurora.[5] Together these form a package of measures intended to deliver long-term benefits for consumers in the restoration of Aurora's network.

1.2 We would like your views on this draft decisions package and seek submissions by 10 December 2020, and cross-submissions by 23 December 2020.

1.3 In the remainder of this chapter, we set out:

1.3.1 the scope of our draft decisions and the structure of this paper;

1.3.2 a background to Aurora and price-quality regulation;

1.3.3 the context for Aurora's CPP application;

1.3.4 what Aurora's CPP application proposes;

1.3.5 the process to date in reaching our draft decisions;

1.3.6 how you can provide your views to inform our final decisions.

Our draft decisions package proposes both CPP and ID regulations for Aurora

1.4 In assessing Aurora's CPP proposal it became clear to us that it was appropriate to supplement our draft decisions on Aurora's CPP with additional ID requirements, which are a separate form of regulation to CPPs. Chapter 2 of this paper covers this in more detail and a high-level overview of the scope of each of these is set out overleaf.

[5] As draft policy decisions only, we intend to consult separately on the implementation of additional ID requirements for Aurora. At this stage, we anticipate doing so alongside our final CPP decision in March 2021. The process for ID requirements is not bound to the statutory timeframes of our CPP decision.

Table 1.1 Scope of draft decisions package

Scope of draft decisions package	
Draft decisions on Aurora's CPP	• The length of the CPP period. • Aurora's expenditure allowances over the CPP period. • The quality standards and quality incentives to apply to Aurora over the CPP period. • The revenue path/cap to apply to Aurora over the CPP period, which spreads the recovery of Aurora's revenue.
Draft policy decisions on additional ID requirements for Aurora	• What information Aurora will be required to publicly disclose over the CPP period and beyond. • The manner and form in which this information is disclosed.

1.5 Whilst these draft decisions place substantive requirements on Aurora, we are aware that they will not address all issues raised to us in consultation to date. This is because not all issues fall within our statutory mandate (eg, the powers we have under CPP and ID regulation). We discuss these issues further in Chapter 4 of this paper and propose how we plan to deal with them. A full view of the structure of this paper is set out below.

Table 1.2 Structure of this paper

Title	Description
Chapter 1: Introduction	An introduction to the draft decision.
Chapter 2: Our draft decisions	Our draft decisions on Aurora's CPP and related measures to address key delivery risks, which are given effect through proposed new information disclosure (ID) requirements to apply to Aurora. It also acts as a 'road map' pointing to where in the chapters and attachments to the paper, more detailed reasons for each of the draft decisions can be found.
Chapter 3: Our evaluation approach	Explains the high-level framework we applied to evaluating Aurora's proposal, and the approach we took to making our draft decision.
Chapter 4: Community and stakeholder engagement	Details the consultation with Aurora's customers, Aurora and other stakeholders that we have undertaken to date on Aurora's CPP, outlines the main issues that stakeholders have raised. While we have taken all submissions into account when reaching our draft decision, for practicality purposes, we have identified and discussed for the purpose of this chapter the major themes raised in submissions.
Chapter 5: Accountability and monitoring	Sets out the delivery mechanisms and monitoring that we are considering undertaking so that interested persons can assess whether Aurora delivers its CPP effectively.
Attachments A- J	Provide detailed descriptions of the key components of our draft decision. The attachments also provide the detailed analysis underpinning our draft decision.

Other documents published as part of the draft decision package

1.6 Alongside this draft decision paper we have also published:

1.6.1 a draft determination setting out how we intend to give effect to our draft decision;

1.6.2 the core models which we have used to reach the draft decision;

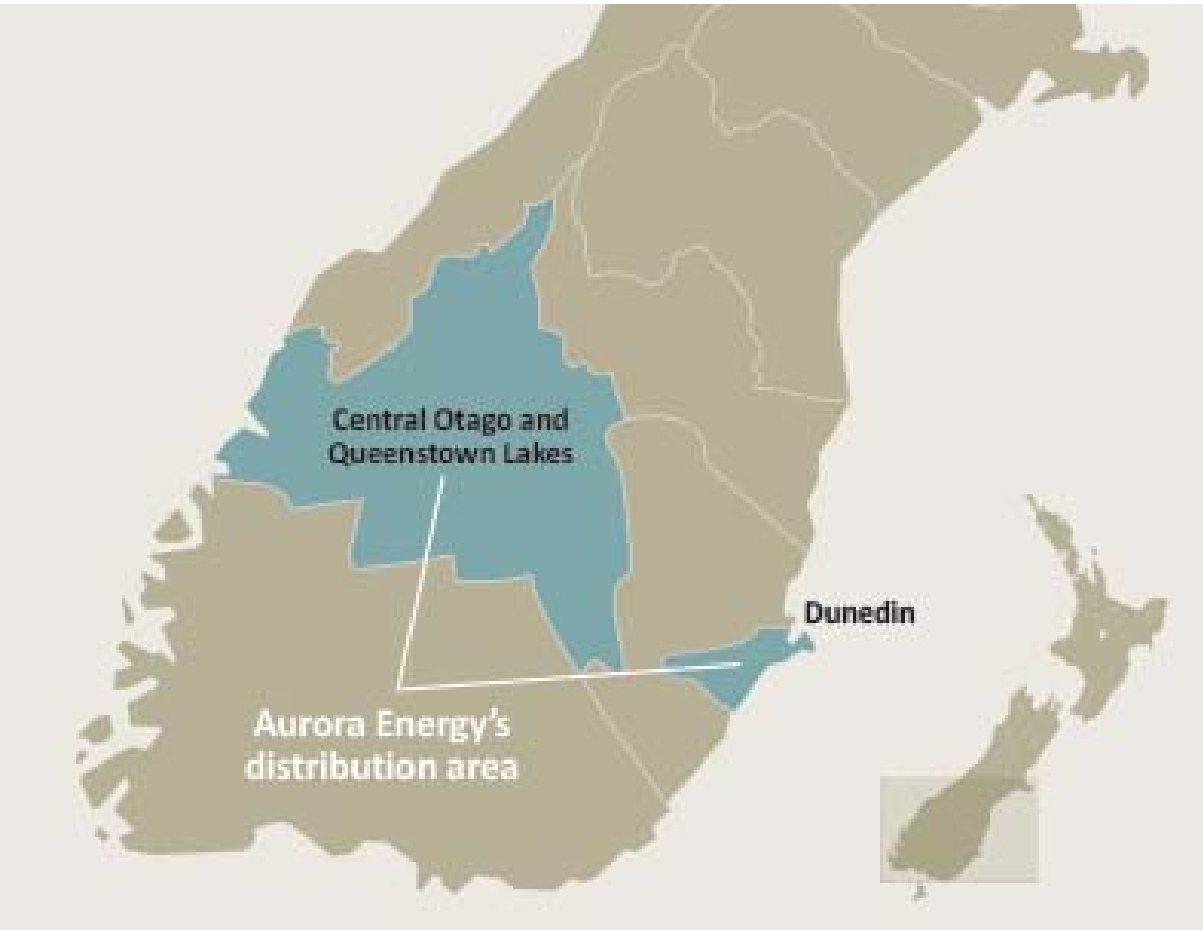
1.6.3 key supporting materials we have relied on in reaching our draft decision; and

1.6.4 consumer facing documents summarising key aspects of our draft decision and the feedback we received at the Issues Paper stage.

A background to Aurora and price-quality regulation by the Commission

1.7 Aurora owns and operates New Zealand's seventh largest electricity lines company by consumer connection numbers. Its network provides electricity lines services to about 90,000 customers in Dunedin, Central Otago and the Queenstown Lakes District.

Figure 1.1 Aurora's distribution area



1.8 As the provider of electricity lines services in these regions, Aurora is regulated by the Commission under Part 4 of the Commerce Act (Part 4).[6]

[6] Transpower, the owner and operator of the national electricity transmission grid, is also regulated under Part 4, but individual price-quality regulation applies to Transpower rather than default/customised price-quality regulation. Aurora's line charges include a component relating to the charges it pays Transpower for connection to the national grid.

1.9 Part 4 requires us to set a price-quality path for those 17 lines companies (including Aurora) that are subject to price-quality regulation. Part 4 requires us to:[7]

1.9.1.1 set a revenue cap, which is the maximum revenue that a lines company can recover;

1.9.1.2 set quality standards which sets the minimum standards for the quality of a lines company's services; and

1.9.1.3 can include incentives for lines companies to maintain or improve quality.

1.10 We can apply price quality-regulation to electricity lines companies in two ways – a default price-quality path (DPP) or a customised price-quality path (CPP) [8]. However, in applying the DPP or the CPP we must apply a common set of rules and processes that are set out in our input methodologies (IM). The Part 4 regime anticipates that electricity lines companies will be regulated by the relatively low-cost DPP framework, in which we collectively set price paths for 17 lines companies for successive 5-year periods. We last set a DPP in 2019 for the 2020-2025 period (inclusive) DPP3. Aurora is currently subject to DPP3.

1.11 The DPP framework relies on electricity lines company forecasts of capital (capex) and operating (opex) expenditure, set out in their asset management plans (AMPs) which we require them to publish. For quality, we set standards that the lines company must meet. We look to ten-year historic quality performance and apply a principle of no material deterioration. Because it is intentionally a relatively low cost framework, there are limits to the amount of scrutiny that can be applied.

1.12 The Part 4 regime acknowledges that the DPP will not always be suitable for all electricity lines companies for a variety of reasons. Therefore, an electricity lines company can apply to the Commission for a CPP to better meet the individual circumstances of their business[9].

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7 Default/customised price-quality regulation is a type of regulation under Part 4 of the Commerce Act 1986 that applies to 17 electricity lines companies across New Zealand. The remaining 12 electricity lines companies across the country are exempt from default/customised price-quality regulation as they meet the 'consumer-owned' exemption criteria under the Act. All 29 electricity lines companies are subject to information disclosure regulation.

8 Electricity lines companies need to apply to the Commission to be placed on a CPP.

9 Section 53K Commerce Act.

1.13 Even with a CPP, there are limits on the level of scrutiny we can apply, as we must publish our final decision within 150 working days of accepting a proposal for a CPP from an electricity lines company. This timeframe includes consultation on our draft decision, and having regard to the submissions received.

1.14 Whether we are setting a DPP or a CPP, Part 4 directs us to promote the Part 4 purpose - long-term benefits of consumers, so that outcomes are promoted that are consistent with those produced in competitive markets such that electricity lines companies:[10]

1.14.1 have incentives to innovate and to invest, including in replacement, upgraded, and new assets;

1.14.2 have incentives to improve efficiency and provide services at a quality that reflects consumer demands;

1.14.3 share with consumers the benefits of efficiency gains in the supply of the regulated goods or services, including through lower prices; and

1.14.4 are limited in their ability to extract excessive profits.

1.15 The input methodologies relating to CPPs include the requirements that must be met by the applicant for information, verification, audit and consumer consultation, as well as the criteria that we must use to evaluate a CPP proposal.[11, 12]

1.16 These evaluation criteria are intended to ensure that our determination of a CPP promotes the Part 4 purpose. There are six evaluation criteria.[13]

1.17 We have to assess Aurora's CPP proposal against all of the criteria. Two of the criteria, in abridged form, are:

1.17.1 Criteria (d) - whether the proposed capital and operating expenditure meet the expenditure objective; and

1.17.2 Criteria (e) - the extent to which any proposed changes to quality standards reflect what the applicant can realistically achieve.

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[10] Section 52A Commerce Act

[11] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26, Part 5

[12] As required by the Commerce Act 1986, s 52T.

[13] Chapter 3 of this paper details these criteria and how and where in this paper we undertook the evaluation of the CPP proposal against the criteria. Attachment A of this paper provides a much more detailed discussion of the approach we have taken to evaluate Aurora's CPP proposal and make our draft decision.

1.18 Criteria (d) - the expenditure objective requires us to assess Aurora's proposed capital expenditure and operating expenditure on the basis that it reflects the efficient costs that a prudent supplier subject to price-quality regulation would require to: [14]

1.18.1 meet or manage the expected demand for electricity distribution services, at appropriate service standards, during the customised price-quality path regulatory period and over the longer term; and

1.18.2 comply with applicable regulatory obligations associated with those services. [15]

1.19 The assessment of forecast expenditure is not a mechanistic process – it requires the exercise of judgement by us, potentially supported by expert advice.

1.20 Criteria (e) - requires us to assess the extent to which the proposed change to Quality Standard Variation better reflects the realistically achievable performance of Aurora over the CPP period than under its existing DPP.[16]

1.21 Incentives are particularly important in relation to investment required for quality outcomes. While we set revenues based on expenditure forecasts, we have no power to direct what, how or when a lines company invests, or what should be included within their AMPs. These are matters for each individual electricity lines company. Our role is to ensure that companies have sufficient revenues and incentives to invest and when they do so, they do so efficiently.

1.22 Importantly, under the Part 4 regime we only regulate overall revenues and not how this is recovered from individual consumers through prices set by the lines company.

1.23 In addition to our power to set price-quality paths, we have other tools available to us under Part 4. Our primary additional tool is our power to determine information disclosure requirements. These provide for suppliers to publicise information on a raft of matters related to their performance so that interested persons can assess their performance.

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[14] We consider that a 'prudent supplier' is a supplier whose planning and performance standards reflect good electricity industry practice (GEIP), and we note that the Verifier took this approach.

[15] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26, clause 1.1.4.

[16] Separate to the CPP Aurora has also applied to us for a Quality Service Variation in respect of the first regulatory year of DPP3, prior to the CPP taking effect, and our separate draft decision on that is also released on 12 Nov.

1.24 The Commission is not responsible for regulating the safety of electricity lines companies. WorkSafe NZ is the regulator responsible for health and safety in the electricity sector and investigates any potential breaches or serious incidents As contemplated by the expenditure objective, we set an allowance for expenditure to enable lines companies to comply with safety and other regulatory obligations.

The context for Aurora's CPP application

1.25 As a result of historic under-investment, the reliability and safety of Aurora's network has deteriorated significantly over recent years. Reliability and safety incidents have been well publicised since 2017, with an increasing number of unplanned power cuts and safety events (e.g. poles falling over) across Aurora's network.

1.26 Aurora's reliability deteriorated to the extent that it breached its regulated quality standards in 2012 and in the period 2016-2019. For the 2016-2019 breaches it was fined $5 million. [17]

1.27 Aurora's underinvestment also resulted in safety problems. Between 2015 and 2018 there were numerous safety incidents related to network assets and defective equipment, including: [18]

1.27.1 225 public hazard incidents relating to overhead conductor (lines) failures, with 27 of these classed as serious hazard events;

1.27.2 88 public hazard incidents relating to pole failures, with six of these classed as serious hazard events; and

1.27.3 16 public hazard incidents relating to crossarm failures, with two of these classed as serious hazard events.

1.28 The 2018 independent WSP report (which we encouraged Aurora to carry-out) on the state of the Aurora network provided detailed insight into the reliability and safety issues present.[19] WSP identified that parts of Aurora's network were in poor condition due to asset deterioration, which posed reliability concerns and safety risks to the public and Aurora's workforce.

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[17] Actual 2020 dollars.

[18] WSP "Independent review of electricity networks - Final report - Aurora Energy" (21 November 2018).

[19] WSP "Independent review of electricity networks - Final report - Aurora Energy" (21 November 2018).

1.29 As Aurora has recognised in its proposal for a CPP, the deterioration in its network largely reflected its underinvestment in the network, which had occurred over many years.[20] Aurora notes that the underinvestment meant that the level of spending on repairs and maintenance was not sufficient to offset the ongoing deterioration in the condition of its network, the core of which was built predominantly in the 1950s and 1960s. Simply put, ageing assets that had not been properly maintained were failing.

1.30 Aurora's levels of investment in its network reflected its own expenditure forecasts. This is because that while the DPP limits the revenues Aurora could earn, the DPP allowances we set are with reference to Aurora's own forecasts of its expenditure needs. Aurora's forecasts, which are set-out in its annual asset management plan, were largely in line with the DPP until 2018 when it began to spend above the DPP to fix urgent issues on the network and begin preparations for a CPP.[21]

1.31 The forecast spend, and therefore revenue collected by Aurora under the DPP between 2009-2020 was low compared with other electricity lines companies.[22] Aurora's relatively low level of revenue can be seen by comparing Aurora's revenue on a per customer basis with that of all the other electricity lines companies in New Zealand over the 2013-2019 period.

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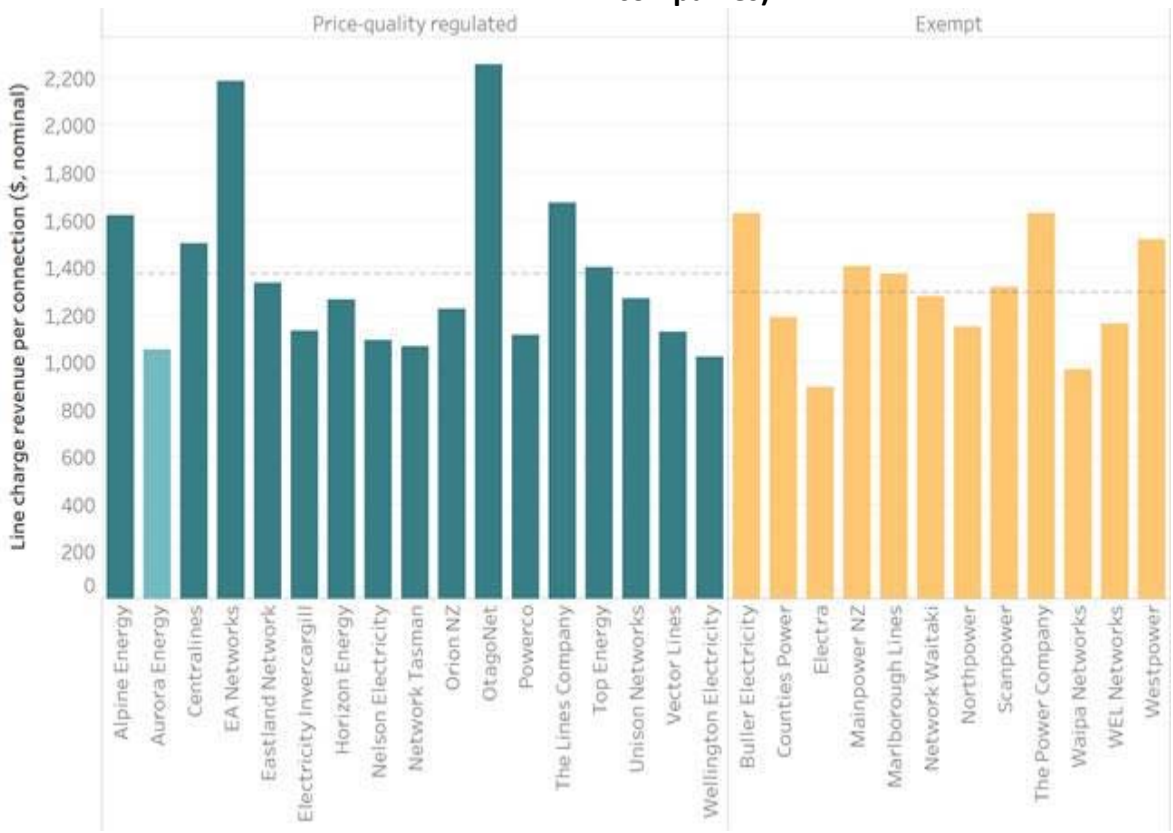
[20] Aurora's "customised price-quality path (CPP): Application. (12 June 2020), para 25 and 26, p.5.

[21] The word 'largely' reflects that Aurora failed to spend $36.7 million of its forecast expenditure for replacement and renewal of network assets between 2010 and 2017. From the agreed statement of facts from the court case for Aurora's quality standard contraventions on p. 18-19: https://comcom.govt.nz/__data/assets/pdf_file/0024/223467/Commerce-Commission-v-Aurora-Energy-Limited-Agreed-Summary-of-Facts-18-December-2019.pdf

[22] The DPP came into effect from 1 April 2009.

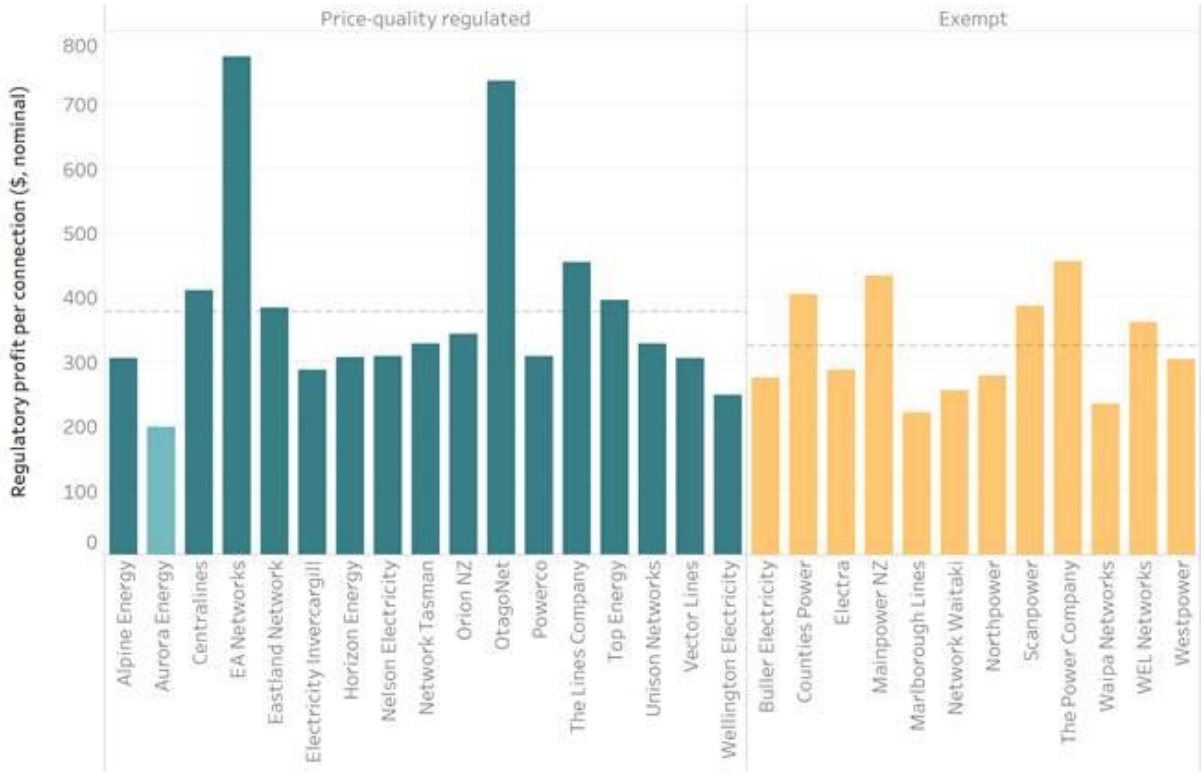
Figure 1.2 Aurora's revenue per customer per year 2013-2019 (dashed line is the average of the price-quality regulated and exempt electricity lines companies)



1.32 It is not possible to say what Aurora's prices would have been if it had invested prudently in its network. The nature of a network and the population density and customer mix will also affect the level of lines charges. However, historically, Aurora has had lower lines charges for its customers compared to those paid on average by customers in the 17 price-quality regulated lines companies (approximately $321 per year less than the average across the 17 price-quality regulated lines companies between 2013 and 2019).

1.33 Furthermore, Aurora's regulatory profit on a per customer basis over the same 2013-2019 period has been the lowest of all electricity lines companies.

Figure 1.3 Aurora's profit per customer per year 2013-2019 (dashed line is the average of the price-quality regulated and exempt electricity lines companies)



What Aurora's CPP application proposes

1.34 On 12 June 2012, Aurora submitted its application for a CPP.[23] The CPP application seeks to increase its allowable revenue to primarily target improvements to its network safety.[24] The application also seeks to alter its minimum quality standards for a three-year period from 1 April 2021.

1.35 Aurora applied for a three-year CPP as opposed to the five-year default period, although it provided forecasts for five years in its application. It considered that the three-year period was preferable because it said its forecasts that underpinned the CPP were materially more robust for the initial three years compared with years four and five.

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[23] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020) and supporting documents can be found at the following link. Aurora Energy's CPP application published.

[24] These are the main drivers which Aurora cites in its proposal. We note that their proposal also includes spend in other important areas such as data and systems to improve their asset management capability. A full breakdown of Aurora's reasons for its CPP and expenditure plans is available in Aurora's CPP proposal on our website.

1.36 Aurora has also signalled it will make a second separate CPP application to follow-on from after the first CPP period, once it has better asset data allowing it to forecast its expenditure more accurately.

1.37 The key features of Aurora's proposal are detailed in the table below.

Table 1.3 Key features of Aurora's proposal

Key features of Aurora's proposal
Aurora forecast to spend $383.3 million over the three -year CPP period from 1 April 2021 until 31 March 2024, compared with $336.9 million for the previous three years.[25]
In order to fund the proposal, Aurora proposed that we allow it to recover this expenditure from its customers, which it modelled would result in changes to power bills of: • **11.9% increase for Dunedin customers, or approximately $20 more a month;** [26] • **16.7% increase for Central Otago and Wanaka customers, or approximately $30 more a month;** • **10.6% increase for Queenstown customers, or approximately $24 more a month.**
Aurora also proposed that its quality standards for planned and unplanned interruptions should be relaxed relative to the current standards that apply. Aurora requested the relaxation in the planned interruption quality standards because it needs to undertake more planned outages than it has in the past to repair its network. Aurora requested the relaxation in unplanned interruption quality standards because, based on feedback from its customers, it wants to limit its spending in the CPP to addressing safety issues and retain reliability at its current actual levels, which is at a lower level of reliability than the current unplanned quality standards provide.

1.38 The following extracts from the Executive Summary of Aurora's CPP application explains why in its views:[27]

1.38.1 it requires the uplift in revenue to improve the state of its network;

1.38.2 this uplift in revenue needs to be funded from its customers;

1.38.3 its quality standards need to be relaxed, and related to the current performance of the network and what is realistically achievable; and

1.38.4 its focus in this CPP is on improving safety and maintaining current actual levels of reliability.

> We are applying for a CPP because our ageing network requires more investment than provided for under the current DPP. Specifically, DPP3 does not deliver sufficient revenue to support the uplift in current and forecast expenditure needed to meet the expectations of our community and stakeholders. Nor does DPP3 set a level of unplanned outage performance (quality) that can be achieved with the corresponding revenue path.

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[25] The previous three years expenditure figure of $336.9 million includes Aurora's expenditure forecast estimate for the 1 April 2020 to 31 March 2021 period.

[26] These are real $ and for year 3 of the CPP and exclude GST.

[27] Aurora's "customised price-quality path (CPP): Application. (12 June 2020), p 5.

> If we invested at levels supported by DPP3, then safety across our networks would be compromised and reliability would continue to deteriorate. We would be unable to meet minimum safety compliance obligations and we would breach the new DPP3 reliability limits. This is an untenable situation for the current Board, our management team and staff.
>
> To meet customer expectations for a safe and reliable service, and meet our minimum legal and safety obligations, we need to invest above the levels allowed under the DPP3. An increased programme of investment inevitably costs more. The much-needed increase in spend on network renewals, upgrades and maintenance has outstripped what we can recover under the current (DPP3) regulated revenue limits. This is why we are asking the Commission to reset the level of revenue we can recover through our regulated lines charges. This will lead to prices that better match the costs of providing the distribution service.
>
> Over the past three years we have significantly increased investment across the network, targeted at those assets which pose the greatest potential safety risk. This investment has drawn on shareholder funding to finance the shortfall. While it was prudent and necessary to increase network renewal ahead of cost recovery in the short term, this situation is not financially sustainable.
>
> The DPP3 quality standards are split into planned and unplanned outages. These now include appropriate planned outage limits for an ageing network requiring outages to renew assets in a safe manner. However, the new unplanned outage limits are not representative of the current performance of the network or what is realistically achievable in the short-term. Furthermore, the level of investment and consequential level of customer prices that would be required to achieve the DPP3 level of unplanned outages is not consistent with what customers have told us during consultation. We are therefore applying for CPP quality standards that better reflect our circumstances and avoid further quality breaches.
>
> Customers have told us they are generally unwilling to pay more for improved reliability. Our CPP plan is to invest to keep the network safe, as our primary objective. By improving overall asset condition, our safety-driven investments will arrest declining unplanned reliability performance.

1.39 On 7 August 2020, we accepted Aurora's CCP application as complete and must now set a CPP for Aurora within 150 working days from that date (by 31 March 2021).[28,29]

The process to develop this draft decisions package

1.40 We have now reviewed Aurora's CPP proposal and made a draft decision. The draft decision, among other things, sets out the maximum amount of revenue Aurora can collect from its customers, and the quality standards that will apply to Aurora for five years from 1 April 2021 to 31 March 2026.

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[28] Commerce Act 1986, Section 53T(2).

[29] The completeness relates to all information required to be submit a CPP application being present and compliant with the rules.

1.41 In reaching the draft decision our process was as follows:

1.41.1 We released an introductory paper on 19 May 2020 outlining the process we intended to follow.[30]

1.41.2 On 12 June 2020 Aurora submitted its CPP proposal.[31]

1.41.3 The proposal included a verification report on Aurora's CPP proposal, as required by our IMs, by the independent verifier – Farrier Swier.[32] Further discussion on the verifier's role and obligations is provided in Chapter 3.

1.41.4 On 30 July 2020 we released an Issues Paper package outlining some key areas of focus for us on the CPP and calling for submissions.[33]

1.41.5 In response to our Issues Paper package we received submissions, including cross submissions.

1.41.6 We also visited Dunedin, Cromwell, Alexandra and Queenstown to meet with interested persons and hear their views on 6, 10, 11 August 2020 and 20, 21 August 2020 online; and we met with Aurora's Customer Advisory Panel on 4 August 2020.

1.41.7 Submissions from stakeholders on:

1.41.7.1 Aurora's published proposal for a CPP; and

1.41.7.2 Our July 2020 Issues Paper package, which discussed key issues arising from our initial assessment of Aurora's CPP proposal.[34]

1.41.7.3 Our own evaluation of Aurora's CPP against the Part 4 decision-making framework.

How you can provide your views

1.42 We want to hear and consider the views of Aurora's customers, Aurora and other stakeholders on our draft decisions package. This will assist us make:

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30 Introductory papers.

31 Aurora Energy "Customised Price-Quality Path – Application" (12 June 2020).

32 Farrier Swier "Aurora Energy CPP Application" Verification Report (8 June 2020).

33 Our assessment of Aurora Energy's Investment Plan.

34 Our Issues Paper package and submissions in response are available at: https://comcom.govt.nz/regulated-industries/electricity-lines/projects/our-assessment-of-aurora-energys-investment-plan.

1.42.1 a final decision on Aurora's CPP; and

1.42.2 a revised decision, and issue a draft determination, on the proposed ID measures for consultation by March 2021.

1.43 This will enable us to make decisions that meets the legislative requirements, including, most importantly promoting the Part 4 purpose.

1.44 To give us time to consider submissions and meet our statutory timeframes for setting Aurora's CPP, we ask that we receive emailed submissions by 10 December 2020 and cross submissions by 23 December 2020.

1.45 We will consider all submissions received by these dates in reaching our final decision on Aurora's CPP.

1.46 Please email your submission to feedbackauroraplan@comcom.govt.nz with 'Aurora CPP draft decision' in the subject line of your email. All submissions will be published on our website, unless you indicate that your submission, or parts of it, are confidential. If you consider your submission to be confidential, please clearly mark which parts of the submission are confidential and provide your reasons for why this is the case.

Next Steps

1.47 The next steps in this process are to consider submissions on this draft decision and then to:

1.47.1 release the final CPP decision on the 31 March 2021;

1.47.2 release a revised draft ID decision and draft ID determination on the 31 March 2021 for consultation;

1.47.3 move Aurora onto the CPP from 1 April 2021;

1.47.4 publish a final ID reasons paper and determination during Quarter 2 and Quarter 3.

Chapter 2 Our draft decision on Aurora's CPP

Purpose of this chapter

2.1 This chapter summarises the key draft decisions we have made on a package of measures in response to Aurora's CPP proposal, including;

2.1.1 our draft decision on the CPP which will apply to Aurora from April 2021; and

2.1.2 our draft policy decisions to set broader information disclosure requirements on Aurora to improve its accountability to customers, especially as it relates to delivery risk.

2.2 More specifically, we outline:

2.2.1 the key features of the draft CPP and how they compare to Aurora's proposal;

2.2.2 the benefits consumers can expect during the CPP based on this draft decision;

2.2.3 the rationale behind our draft decisions; and

2.2.4 implications from, and others matters raised by, this draft decision. These include, in particular:

2.2.4.1 the indicative price impacts to residential consumers from this draft decision; and

2.2.4.2 our draft policy decision to develop new ID requirements to apply to Aurora which primarily relate to the risk that Aurora will not deliver its CPP effectively.

A summary of the key features of our draft decision

2.3 Table 2.1 summarises what we have proposed for our draft decisions against what Aurora proposed for our approval, along with brief reasons as to why.

Table 2.1 Our draft decisions with high-level reasoning

Decision component	Aurora's proposal	Our draft decision	Reasoning
Term of the CPP	3 years	5 years	We have sufficient confidence that the basis for forecasts in years 4 and 5 is not significantly worse than years 1-3 and consider the risks of under forecasting can be managed through reconsideration mechanisms.
Total expenditure (capex+opex real $2020)	$609.3 million	14.1% reduction to $86.2 million	Explained under capex and opex below
Capex **(real $2020)**	$356.3 million	11.5% reduction to $315.5 million	Excluded projects that were dependent on uncertain demand, applied efficiency gains from investments and reduced asset renewals that we consider are not yet required.
Opex **(real $2020)**	$252.9 million	17.9.% reduction to $207.7 million	Reductions mainly due to inefficiencies in System Operations and Network Support (SONS) and people costs, vegetation management and unit rates. We didn't consider the significant increases of opex were justified, particularly considering the size of Aurora's business compared to other comparable networks.
Revenue	Full recovery of revenue within the CPP period (three years). Spread recovery of overspend leading up to its CPP over eight years.	The maximum revenue Aurora can recover from consumers will increase by 10% each year of the CPP. As a result, Aurora will not fully recover its revenue within the CPP period, as a small portion will be deferred into the next regulatory period.	We consider some additional revenue recovery could be deferred to help mitigate some of the price shock for consumers, however we have not made significant deferrals to ensure Aurora still has sufficient revenues upfront to make the necessary investments in the network.

Decision component	Aurora's proposal	Our draft decision	Reasoning
Quality: Unplanned outages	A relaxation of the quality standards it currently faces, forecasting longer and more frequent unplanned outages compared to the 2016-2020 period	Outage standards set at a more demanding level than Aurora proposed. If Aurora breaches these standards, it will face enforcement action from us, including possibility of further court prosecution.	Reflects Aurora's recent historical performance and is therefore realistically achievable. Provides incentives for it to improve its performance on unplanned outages and sanctions if performance deteriorates.
Quality: Planned outages	An expectation that planned outages would increase so that it can undertake network replacement. However, Aurora expects it can work within the current planned standard, partly by significantly improving how it notifies its customers of planned outages.	Planned outage standard is set at the same level Aurora proposed. If Aurora breaches these standards, it will face enforcement action from us, including possibility of further court prosecution.	We agree that Aurora's forecasts are appropriate. We have made some minor changes to reflect Aurora's need to improve its notification of outages, undertake work efficiently within a set window and to minimise outage cancellations at short notice. If performance deteriorates, Aurora will face sanctions.

Expected consumer benefits

2.4 Table 2.2 details how our draft decision promotes long-term benefits to consumers.

Table 2.2 How our decision benefits consumers

Benefit to consumers	Draft decision delivering the benefit
Safety issues addressed	• Aurora has sufficient revenues to address known network safety issues by the end of the CPP period.
Reliability performance stabilised with incentives to improve, and sanctions if performance deteriorates	• We have set the unplanned outage standard at a more demanding level than Aurora proposed. Planned outages standard is set at the same level Aurora currently faces. Aurora faces financial penalties and rewards for delivering reliability that is different from these standards. • If Aurora breaches these standards it will face possible enforcement action from us, including the possibility of further court prosecution.
Improved notification of outages	• Aurora has sufficient revenues to upgrade its outage management and systems. • We have set financial incentives that encourage Aurora to undertake planned work efficiently and provide consumers with timely and accurate notification of planned outages and minimise late cancellations of planned work.
Ensuring Aurora spends the right amount at the right time	• We have closely reviewed and then cut Aurora's proposed expenditure allowances to ensure prices reflect prudent and efficient investment only. • We propose mechanisms to provide flexibility to address changes in circumstances. Aurora can apply for additional capex to fund growth projects if demand for electricity increases faster than expected. If new risk events are identified, Aurora can apply for additional funding to urgently address those risks.
Aurora has incentives to improve efficiency over time	• Aurora faces a financial incentive to become more efficient over time. We have proposed to retain the existing expenditure incentive scheme applying to all electricity lines companies that are subject to price regulation.
Smaller price increases than Aurora proposed	• As a result of our draft CPP decision, indicative price increases would be around half the size of those inherent in Aurora's proposal for a 3-year CPP. • Our estimates have been subject to independent expert review.
Innovation encouraged	• Funding provided to contract distributed energy resources and defer major capex. Future networks funding to improve network understanding and monitoring.
Incentives to improve performance over time	• The expenditure allowances we propose will enable Aurora to improve the services its network provides over time from enhanced asset management systems. • We have proposed a package of incentives to improve performance over time. These include requiring Aurora to: - Publish an annual delivery report - Present that report and seek stakeholder feedback at annual regional meetings - Publish an expert report on its progress in delivering the CPP - Disclose further information on how prices are set for individual consumers, and Aurora's cost to supply model, so consumers can engage with Aurora on those prices

The rationale behind our draft decisions

2.5 In this section, we explain more fully the thinking behind why and how we arrived at our package of draft decisions. In particular, we outline our draft decisions on:

2.5.1 the length of the CPP period;

2.5.2 unplanned outage standards and incentives;

2.5.3 planned outage standards and incentives;

2.5.4 why additional investment on the Aurora network is required;

2.5.5 overall expenditure and the allowances for capex and opex;

2.5.6 smoothing revenue to manage price shock to consumers; and

2.5.7 draft determination to give effect to these draft decisions.

Our draft decision on the length of CPP period

2.6 Aurora submitted its CPP proposal for a three-year period, as opposed to the standard five-year period. It explained that further out in time, its forecast information becomes more uncertain and that this creates a challenge in being able to correctly identify necessary work required on its network and accurately forecast the required spend in years four and five.

2.7 Our draft decision is for a term of five years commencing on 1 April 2021 instead of the three-year period. We consider that the benefits from the revenue and quality certainty associated with a five-year CPP outweigh the risk and effect of revenue over-recovery or under-recovery from having a three-year CPP. We have dealt with some of the uncertainty in years four and five of the CPP, by providing for limited reopeners of the price path. More detailed reasons for our draft decision on the length of the CPP period are set out in Attachment B.

Our draft decision on unplanned outage standards and incentives

2.8 Aurora has asked us to set more relaxed targets and standards for unplanned power outages during the CPP period. Aurora considers this is necessary to reflect the deteriorating reliability of its network, and because Aurora expects further deterioration in reliability before its investment programme can stabilise and then improve reliability.

2.9 Our draft view is that Aurora's plans to fund major network investment should enable it to perform better than it has proposed. The draft unplanned outage targets we have set for Aurora broadly reflects Aurora's recent performance over the last five years, but are worse than its performance prior to 2016. We consider our proposed limits for unplanned outages to be realistically achievable. Aurora will face financial penalties and rewards when its performance deviates from this target.

2.10 Our draft decision is to set annual unplanned outage standards that are above (more lenient) the current standards Aurora faces under DPP3, but below (not as lenient as) Aurora's proposed standards. This is shown in Table 2.3.

Table 2.3 Unplanned quality targets and limits (annual)

	SAIFI (Interruptions) (Frequency of Outages)			
	Target	**Limit**	**Target**	**Limit**
Current standard (DPP3)	63.44	81.89	1.17	1.47
Aurora's average performance (2016 - 2020)	90.3		1.58	
Our draft decision	88.08	124.94	1.57	2.07
Aurora's proposal	110.02	142.01	1.80	2.26

2.11 Our proposed targets are similar to Aurora's recent reliability performance over the last five years. We consider these targets to be realistically achievable.

2.12 We propose to retain the revenue-linked quality incentive scheme for unplanned outages that Aurora currently faces under DPP3. The scheme incentivises Aurora to prevent further deterioration of reliability and improve it where it is cost effective to do so, including restoring outages efficiently.

2.13 We consider that Aurora is unlikely to breach the standards (limits) we have set, and that if it does exceed these limits, it would be appropriate for us to investigate its performance. In our view, Aurora's planned expenditure on its network should allow its unplanned outage performance to be better than what it has proposed at no additional cost to consumers.

Our draft decision on planned outage standards and incentives

2.14 Our draft decision on the quality standard and incentive scheme for planned outages is to accept Aurora's proposal, which keeps the standard the same as the DPP3 and incentives but with a higher target (more lenient) for planned outage duration due to the large amount of asset replacement intended.

2.15 Our draft decision to apply the incentive scheme to Aurora's planned outages would provide Aurora with a financial incentive to improve its notification of outages and undertake work efficiently within a set notification window. It would also encourage Aurora to minimise planned outage cancellations at short notice.

2.16 Further detail on our planned and unplanned outage draft decision and reasoning is contained in Appendix C.

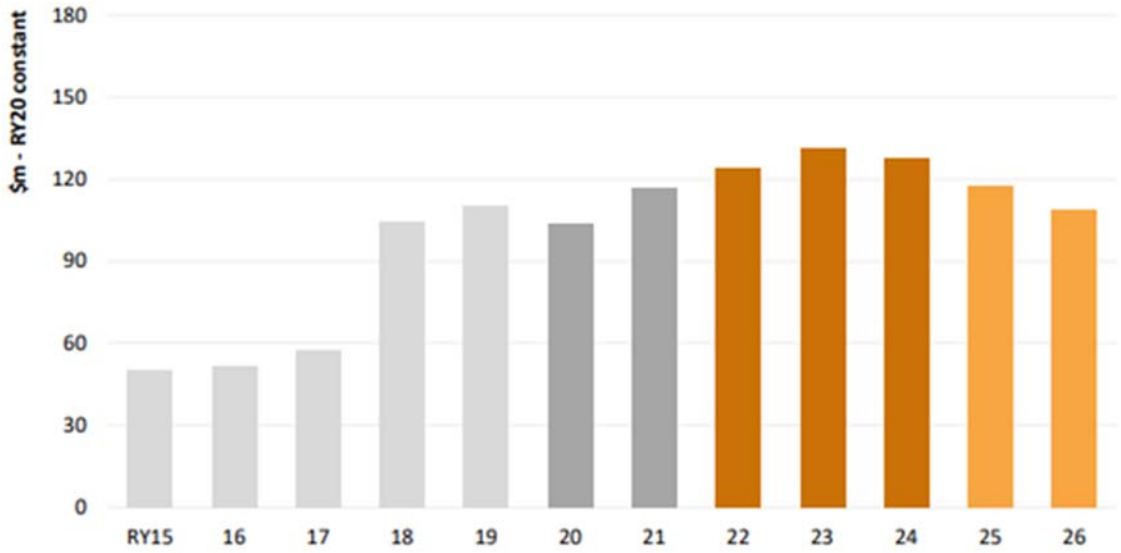
Our draft decision is that additional expenditure is justified

Aurora sought significant additional expenditure

2.17 Aurora forecast spending $609.3 million in capex and opex (real $2020) over five years from April 2021 to reflect its proposal was for three years. This capex and opex related to renewing, upgrading and maintaining its network to meet consumer expectations for a safe and reliable service, and meet its minimum legal and safety obligations. This is an increase of $177 million over what has been allowed in its DPP.[35]

2.18 Figure 2.1 from Aurora's proposal, which is its forecast spend over five years, shows the extent of the actual and proposed increase in spending over time (in real terms). It shows how Aurora significantly increased expenditure part-way through the DPP (from RY18) and forecasts to continue this high level of investment for at least the next five years and likely beyond that.

Figure 2.1 Aurora's total historical and forecast expenditure



[35] The DPP allowance estimates are calculated using the nominal values of the DPP3 capex and opex allowances, capex and opex allowance estimates for the first year of DPP4, and inflated to real 2020 dollar terms using NZIER August 2019 cost inflators.

Our draft decision is that Aurora's case for additional expenditure is justified

2.19 It is appropriate that Aurora apply for a CPP to increase investment, renew assets, and in so doing, to improve safety and eventually reliability. In our view, Aurora has demonstrated the case for a step change in investment (although opinions differ on the amounts of investment).

2.20 The conclusion that additional investment is required is endorsed by expert opinion including from the independent verifier, Farrier Swier, and our adviser, Strata. We note that many stakeholders in submissions acknowledged that this additional investment is needed to ensure consumers will again benefit from a safe, reliable service from this critical infrastructure.

2.21 We do not regulate safety, nor how Aurora chooses to invest, but we do limit the maximum amount it can charge its consumers in aggregate, and set and enforce minimum standards of service consumers should experience. The legislation under which we regulate monopolies like Aurora seeks to promote long term benefits to consumers and to ensure Aurora:

2.21.1 has incentives to invest and innovate;

2.21.2 has incentives to provide services at a quality that reflects consumer demands;

2.21.3 has incentives to improve efficiency and share the gains with consumers; and

2.21.4 is limited in its ability to extract excessive profits.

2.22 The legal framework for setting a CPP is explained more fully in Chapter 3 and Attachment A.

2.23 Companies need incentives to invest in their business. A company will only invest to maintain and enhance its services if it expects to be able to at least recover the cost of its additional investment. That cost is recovered through charges to the people who use and benefit from the service.

2.24 In the case of Aurora, it is recovered through line charges which flow through to its electricity consumers who are connected to its network. Incentives to invest are particularly important for a business where the benefits to consumers, and the returns to the company, accrue over very long periods of time – many decades. This is the case for an infrastructure business like Aurora.

2.25 However, the Part 4 regime does not entitle Aurora to recover all the cost of its investment. Like consumers who buy services from firms that face competition, consumers of a service provided by a regulated monopoly should not expect to have to pay for investment that is imprudent or inefficient. Though our regime is focussed on assessing prudency and efficiency, it is not a guarantee.

Our draft decision on overall expenditure

2.26 Our draft decision is that some of the expenditure identified by Aurora does not reflect the efficient costs of a prudent lines company and should not be recovered from consumers. Further, Aurora must bear some of the costs of the additional expenditure it incurred prior to the CPP period, irrespective of its efficiency.

2.26.1 Aurora will not be able to recover all the additional expenditure it has undertaken in the period up to April 2021. Aurora says that this expenditure was made to address urgent safety risks which had become apparent on its network, including those highlighted in the 2018 'state of the network report' from WSP. We consider that this expenditure was necessary and will benefit consumers in the long term compared with Aurora postponing expenditure to when the CPP commences. This expenditure was greater than Aurora's own AMP forecasts of the expenditure required by its network at the beginning of DPP2. As we based the DPP expenditure allowances on Aurora's 2014 AMP, this additional expenditure was not subject to our scrutiny before Aurora undertook the work. Consistent with the terms of the DPP, Aurora will face a net incentive amount of approximately $43 million (in real 2020 terms) for overspending its approved expenditure allowances.

2.26.2 Aurora's proposed expenditure programme from April 2021 has, as part of this CPP, been closely scrutinised by us, an independent verifier, and by an expert (Strata) appointed to advise us. Based on that analysis and advice, we consider the amount of expenditure Aurora sought is greater than a prudent and efficient network owner would need. Our draft decision is to reduce the expenditure allowance by $86.2 million (real $2020), or 14.1%, from that proposed by Aurora over the CPP period of five years. We have also made some expenditure contingent on certain conditions materialising such as increased demand on Aurora's network and risks relating to the condition of the network.

2.27 Overall, we have allowed for a significant portion of the additional expenditure which Aurora sought (85.9%) but have made some adjustments to reflect what we consider the efficient levels of capex and opex spend are (within certain categories) to deliver the outcomes sought by its CPP.[36]

2.28 Before arriving at this draft decision, we assessed the extent to which we could rely on the Verifier's analysis and conclusions, raised questions with Aurora and the Verifier, sought further clarifying information and analysis, undertook our own detailed analysis and sought expert external advice from Strata regarding key aspects of the proposal.

2.29 Our overall view is consistent with the Verifier's overall findings which concluded:

> Aurora is addressing specific network safety and reliability needs, is on an asset management journey, and is preparing its network for the future. This means that:
>
> Increased capex and opex spend is required to reduce safety risk, stabilise asset performance, and generally improve asset condition through addressing a rising backlog of asset renewals and maintenance and to support good electricity industry practice asset management such as on systems to provide better quality information and analysis, which are expected to reduce expenditure needs in the longer term.
>
> While Aurora intends to implement good asset management practices, in the immediate term its expenditure forecasts reflect, at least in part, current practices and information.
>
> Aurora has an increased focus on managing and reducing risk; this is consistent with prudent practice – in some areas, however, recent activities and expenditure were arguably below that associated with prudent practice, and some catch-up is required.

2.30 Of Aurora's expenditure in its proposal, the verifier reviewed 66% of capex and 92% of opex. This left 34% unreviewed in capex and 8% unreviewed in opex.

2.31 Given the status of Aurora's asset management maturity and the quality of the supporting material, we reviewed the remaining 34% of unreviewed capex.[37] Despite reviewing 88% of opex, the verifier left an extensive list of issues for us to investigate further that were fundamental to the opex forecast.

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[36] It reflects the efficient costs that a prudent supplier would require to meet or manage the expected demand for electricity distribution services, at appropriate service standards, during the CPP period and over the longer term; and comply with applicable regulatory obligations associated with those services.

[37] Subsequent to the CPP proposal being submitted, the Verifier commented to us that a large proportion of project and programme documentation, expenditure justifications and modelling had to be produced on request during the verification process. This meant we were less confident of accepting the unreviewed capex without some level of scrutiny.

2.32 After our review of the CPP proposal, the verifier's report and analysis of the unreviewed capex and opex issues, we propose to:

2.32.1 approve 88.5% of proposed capex with reductions mainly due to demand uncertainty relating to network growth and security projects (albeit with an option to reopen the price path if growth is higher than we have assumed), as well as some efficiency adjustments to some investment categories;

2.32.2 approve 82.1% of proposed opex with reductions mainly due to inefficiencies in SONS and people costs, and the high unit rates used for vegetation management expenditure.

2.33 In aggregate, our assessment has led us to propose that we allow for 85.9% ($523.1 million) of the total expenditure of $609.3 million (real $2020) proposed by Aurora.

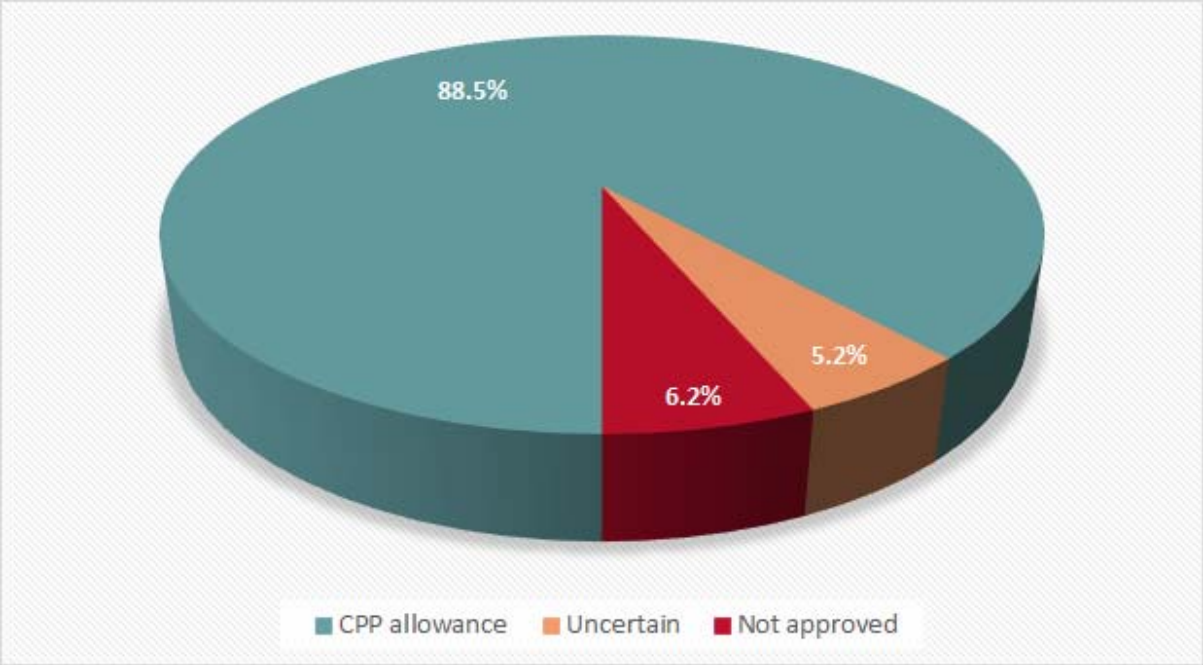
2.34 The next two sections provide further detail on the two categories of expenditure – capex, followed by opex.

Our draft decision on a prudent and efficient capex allowance

2.35 Capital expenditure is recovered over the life of the asset, so while only a small proportion of it will be recoverable through the price path during the CPP period, its impact on prices will extend beyond the CPP period, with the full impact on pricing becoming apparent when we set prices for the subsequent regulatory period.

2.36 Aurora proposed a total of $356.3 million of capex (real $2020) over the five-year CPP period. Our draft decision is to provide for $315.5 million (real $2020) of capex over the five-year CPP period which is a proposed reduction of 11.5% on what Aurora proposed. Figure 2.2 illustrates this.

Figure 2.2 Draft decision breakdown of capex



2.37 The proposed 11.5% reduction comprises:

2.37.1 removal of $3.3 million of unverified poles expenditure because pole reinforcement may be viable economically from RY24;

2.37.2 deferral of $4.3 million in sub-transmission cables expenditure due to low cable fault rates not supporting early replacement;

2.37.3 removal of $4.2 million in distribution and LV cables, pole mounted switches, pole mounted fuses, and distribution transformer capex due to replacement modelling assumptions over-forecasting investment need;

2.37.4 treating as uncertain $13.3 million of growth and security capex, and $2.1 million of consumer connection capex due to uncertainty;

2.37.5 removal of $13.5 million based on a 5% top-down efficiency adjustment to reflect improved asset management systems and processes, replacement model over-forecasting, new Field Service Agreements increasing competition and better works delivery processes.

2.38 To address the 5.2% of expenditure due to uncertainty of network capacity need as well as future expenditure required beyond the first three years of the CPP period (RY22-RY26) related to risk, we are proposing two reconsideration mechanisms. Aurora may apply to us after the CPP is set and during the CPP period to include approval of expenditure for:

2.38.1 work that is dependent on a capacity requirement, caused by a change in security of supply, or an increase in demand or generation on Aurora's network; and

2.38.2 work that may be required due to risk events relating to the condition of the network.

2.39 Table 2.4 below details the capex expenditure proposed by Aurora, and included in our draft decision broken down by category.

Table 2.4 Capex by category (real $2020)

Expenditure category	Aurora proposal $m	Draft decision $m[38]
Asset renewals	281.8	258.6
Network growth and security	30.3	16.2
Other network capex	29.1	25.7
Non-network capex	15.2	15.0
TOTAL	356.3	315.5

2.40 Further detail on the capex draft decision and reasoning is contained in Appendix D.

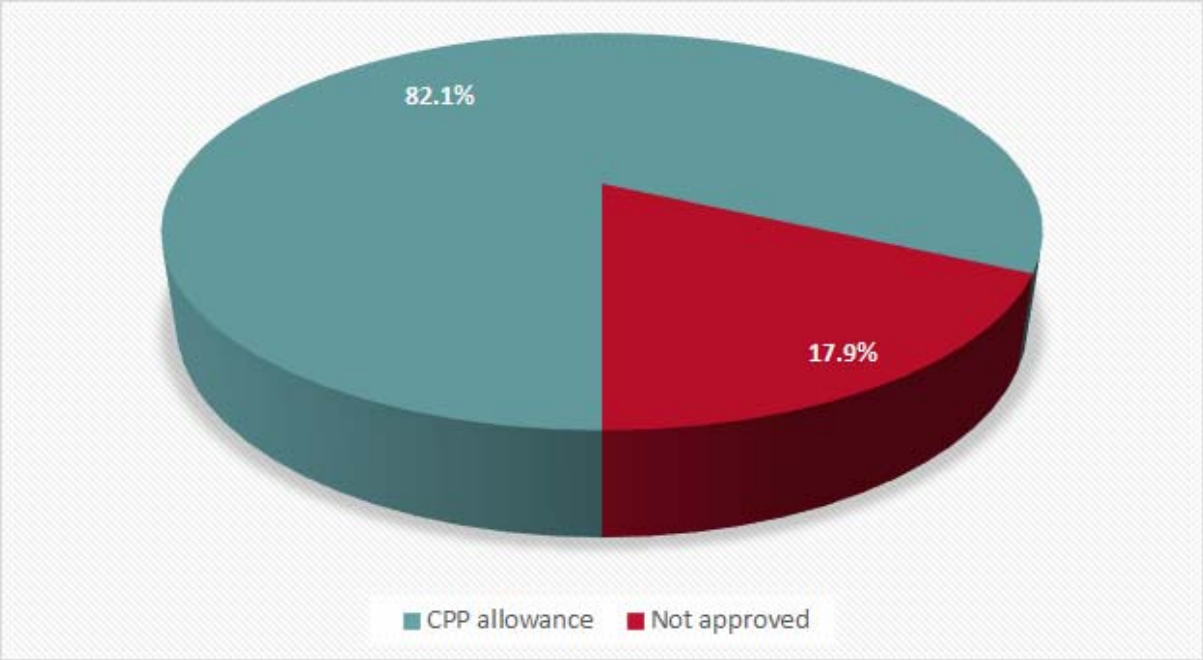
Our draft decision on a prudent and efficient opex allowance

2.41 The opex forecast that we use for Aurora's CPP directly affects the price path, as Aurora will be able to fully recover this amount during the CPP period.

2.42 Aurora proposed a total of $252.9 million of opex (real $2020) for its CPP period over five years. Our draft decision is to provide for $207.7 million over that five-year period which is reduction of 17.9% on what Aurora proposed. Figure 2.3 illustrates this.

[38] Excludes capital contributions and any capex associated with Right of Use assets.

Figure 2.3 Draft decision breakdown of opex



2.43 The proposed 17.9% reduction comprises:

2.43.1 SONS and people expenditure significantly reduced due to it not reflecting the efficient costs that would be required by a prudent electricity lines company;

2.43.2 vegetation unit rate significantly reduced due to comparison with peers;

2.43.3 network growth trend multiplier removed from the opex categories of SONS, people, corrective maintenance and reduced for reactive maintenance;

2.43.4 reduction to Aurora's proposed step change in corrective maintenance opex due to additional defects;

2.43.5 SONS, and plant, premise and insurance opex reduced due to smaller increase allowed to insurance premia than proposed by Aurora;

2.43.6 people expenditure reduced due to smaller increase allowed for staff training costs than proposed by Aurora; and

2.43.7 reduction to Governance and Administration opex proposed due to efficiency benefits from bringing in-house a material amount of its legal work.

2.44 Table 2.5 below details the expenditure proposed by Aurora, and included in our draft decision broken down into categories.

Table 2.5 Opex by category (real $2020)

Expenditure category	Aurora proposal $m	Draft decision $m[39]
Preventive, Corrective & Reactive Maintenance	70.3	69.4
Vegetation Management	21.2	16.1
System Operations and Network Support (SONS)	80.4	55.4
People costs	40.3	27.1
Information Technology (IT) Opex	17.0	17.0
Premises, Plant and Insurance	5.1	5.1
Governance and Administration	15.6	14.5
Distributed Energy Resource (DER) Upper Clutha	3.0	3.0
TOTAL	252.9	207.7

2.45 Further detail on the opex draft decision and reasoning is contained in Appendix E.

Our draft decision is to smooth revenues to limit price shock

2.46 As part of our CPP decision, we have sought to reduce the shock of large price increases to Aurora's consumers by smoothing the amount of revenue Aurora is allowed to recover over time. Various options were considered to smooth the revenue increase including adjusting the starting point of Aurora's total revenue in the first year of its CPP, adjusting the annual rate of change in revenues over the duration of the CPP, and spreading the revenue changes across more than one regulatory period. We propose to limit the increase in Aurora's total revenues to approximately 10% per annum, inclusive of inflation.

[39] Excludes operating lease costs.

2.47 In Attachment G we present two options to achieve this. The key difference between the two options is the rate of increase in the first year of the CPP. Our draft decision is to allow Aurora to increase its prices by 10% (inclusive of inflation) in each year of the CPP period, including the first year.[40] However, we welcome views from submitters as to whether they would prefer a smaller price increase of 5% in the first year but with prices increasing for longer (Option Two). Option 2 reflects that what Aurora's customers might consider to be a price shock may be different currently, due to the impact of Covid-19, to what it might otherwise be under more normal economic conditions. To allow for inflation and the later payment of money to Aurora, consumers would pay $9.3 million more under this option. Both options preserve Aurora's incentives to invest by ensuring it expects to recover the efficient costs of making the proposed additional investment.

2.48 Our two options use a combination of existing revenue smoothing mechanisms instead of varying the IMs as proposed by Aurora to smooth the recovery of its overspend (incurred during DPP2 and Year 1 of DPP3) over two regulatory periods.

2.49 As a result of our draft decision, Aurora will not fully recover its revenue within the CPP period, as a small portion will be deferred into the next regulatory period.

2.50 Further detail on the price path and revenue smoothing draft decision and reasoning is contained in Appendix G.

2.51 Table 2.6 shows the resulting revenue profile over the CPP period as a result of our draft decision compared with Aurora's proposal. Our final decision on capex and opex allowances may change as a result of submissions on our draft decisions, and this would flow through to change the revenue path too.

Table 2.6 Aurora forecast revenue compared with our draft decision (nominal)

	2021/2022 $m	2022/2023 $m	2023/2024 $m	2024/2025 $m	2025/2026 $m
Aurora's proposal	86.4	94.3	102.9	112.3	122.6
Our draft decision	96.0	93.1	90.2	87.4	84.7
Difference	9.7	-1.2	-12.7	-24.9	-37.9

[40] Note that the increase applies to the lines charge component of the electricity bill. The overall increase in electricity bills will be lower than this.

Our draft determination to give effect to these draft decisions

2.52 We have published a draft CPP determination for consultation alongside this draft reasons paper to show how our draft decisions would be reflected in a CPP determination. Unless noted otherwise, the draft CPP determination carries over compliance and reporting features from the Powerco CPP determination and the DPP3 determination. In particular, we note the following features of the draft CPP determination:

2.52.1 the requirements necessary to comply with, and report on, the price path, including an annual revenue wash-up calculation;

2.52.2 the requirements necessary to comply with, and report on, the quality standards for planned interruptions, unplanned interruptions and extreme events, including director certifications of the reporting;

2.52.3 the IMs are subject to the IM variations, as discussed in Attachment J;

2.52.4 we have simplified the treatment of voluntary undercharging amounts foregone;

2.52.5 specification of a starting price for the first year of the CPP regulatory period;

2.52.6 set out how to calculate the forecast revenue from prices and to show demonstrably reasonable forecasts;

2.52.7 specification of a 10% annual rate of change in revenue allowed in the CPP regulatory period;

2.52.8 specification of the WACC rate for the CPP regulatory period, including the final year which does not overlap DPP3;

2.52.9 set out how to calculate the revenue wash-up amount;

2.52.10 specification of the forecast capex and forecast opex amounts for the purposes of the capex IRIS and opex IRIS incentive schemes;

2.52.11 set out how to calculate the quality incentive amount;

2.52.12 the compliance requirements on price-setting and for the Annual Compliance Statement, including various auditor assurance and director certification requirements; and

2.52.13 the requirements for notification of transactions, that could cause a reopening of the price-quality path during the CPP regulatory period, including director certification requirements.

Implications from and other matters considered in this draft decision

2.53 In this section we discuss the implications from our draft decisions, and some other matters raised by, this draft decision. In particular, we summarise:

2.53.1 The implications of COVID-19 on our draft decisions;

2.53.2 the indicative price impacts of our draft decision on the Aurora CPP on the line charges that will be charged to residential consumers;

2.53.3 How Aurora can deliver the CPP investment plan and our draft policy decisions to impose additional information disclosure requirements on Aurora to monitor its performance;

2.53.4 How Aurora can regain the trust and confidence of Aurora consumers;

2.53.5 energy efficiency, demand side management, and reducing energy losses; and

2.53.6 the choice of assumptions for estimating cost growth over time.

The impacts of Covid-19

2.54 We are very aware of the significant impact Covid-19 and the economic slowdown has had on the Otago region. Tourism is a significant part of the Otago economy, and with the domestic and global economy in recession, and international visitor flows significantly reduced, the path to economic recovery in Otago is uncertain. The price increases required to fund Aurora's additional expenditure will come at what might be a bad time for many Otago electricity consumers.

2.55 The lower expenditure we propose reflects in part our view that, due to Covid-19, some of the capacity investment proposed by Aurora to meet increased demand for electricity on its network can be delayed. However, since the timing of economic recovery is uncertain and could be faster than we anticipate, we propose a CPP reopener which would allow Aurora to increase investment to meet increased demand, should this eventuate. We think this mechanism is desirable since we would not want a lack of capacity on the electricity network compared to demand, but we do not want consumers to have to pay for investment that is not needed or for which the need is uncertain.

2.56 To take account of the effect of Covid-19 on the New Zealand and worldwide economy we have also amended the cost escalator values, and foreign exchange rate and inflation forecasts in our CPP price path model to account for more recent data. The total effect of these adjustments is to reduce the price impact of the CPP.

The indicative price impacts on residential consumers

2.57 We are grateful to the many consumers who met with us and those who made submissions. A fundamental concern for many was the potential size of the price increases and, especially for consumers from Cromwell and Alexandra, the large differences in Aurora's prices, and in the size of proposed price increases, between its three pricing regions.

2.58 Under the Part 4 legislative regime we do not set the prices for individual consumers or for the pricing regions on Aurora's network. Setting all those prices is a matter for the company to determine through the application of its pricing methodology. The Electricity Authority sets distribution pricing principles, publishes guidance material and assesses distributors' pricing methodologies against those principles. We note that Aurora's pricing methodology seeks to reflect differences in its cost of supplying electricity to the various consumers and parts of its network. It is common for electricity consumers in areas with lower density to have a higher cost to serve, and higher prices.

2.59 Based on our understanding of Aurora's current pricing methodology we have estimated the indicative price impacts as a result of the CPP for residential consumers in Aurora's three pricing regions. We have done so to better inform stakeholders and to give Aurora consumers as much notice as possible about the size and timing of the increased lines charges they may face. We hope this early warning will enable consumers to prepare as best as they can for these increases.

2.60 In Table 2.7 below we compare our estimates of the indicative price increases with restated estimates of the indicative price increases Aurora released with its CPP application. Aurora's estimate of price increases was based on Aurora's proposed levels of expenditure but used different assumptions to us to estimate the price impact. For example, Aurora's estimates excluded GST and inflation, and stated the impact of its proposed increases on consumers' bills in a way that many of its consumers may not be familiar with. We have restated Aurora's estimates to include GST and expected inflation since these are always part of the electricity price consumers pay.

Table 2.7 Indicative monthly electricity bill impacts RY24 based on our draft proposal (subject to change following consultation)

Indicative increase in residential electricity bill for the average residential consumer[41]	Dunedin	Central Otago and Wanaka	Queenstown
Aurora's original proposal	$20.30	$30.90	$24.10
Based on Aurora's proposal (restated to include GST and inflation)	$32.70	$47.30	$39.80
Based on our draft decision	$22.20	$31.50	$22.70
Estimated reduction in price increase due to our scrutiny	$10.50	$15.80	$17.10

2.61 Based on the lower estimates of expenditure we propose, we estimate average price increases for residential consumers of $22 per month in Dunedin, $32 in Central Otago and Wanaka, and $23 in the Queenstown region. These are average price increases, but the increase to individual consumers will be different, and quite possibly very different, due to differences in their usage profiles, among other factors. There is also a significant difference in monthly electricity bills in Otago between, for example, summer and winter.

2.62 Our estimates of the price increases are around 30% to 40% less than the price increases which were inherent in Aurora's proposal, when expressed on a comparable basis. This lower level of price increase reflects the benefits from the close scrutiny we have placed on Aurora's investment plans and our proposed smoothing of price increases (which we discuss below).

2.63 Nevertheless, further price increases are forecast to occur beyond the third year of this CPP shown in the table above. The total cost of electricity for a residential consumer is forecast to increase by an extra $10 per month in both 2024-2025 and in 2025-2026.

2.64 The indicative price increases are among the largest we have seen in the electricity lines sector. This reflects the extended period of underinvestment by Aurora, and the large size of the remedial work programme Aurora network now requires. Aurora's investment programme commenced in RY18 and will need to continue through the CPP period (and likely beyond).

2.65 It is important to note that these indicative price increases are based on our draft decisions on allowances for capex and opex and will increase if, as a result of points made in submissions on this draft decision, we increase the final expenditure allowances from those in this draft decision.

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[41] These increases are for a three-year period, as per Aurora's CPP application.

2.66 These estimates have been modelled by us and independently reviewed. The independent review has been released with this draft decision. It is important to note that individual consumers may receive larger or smaller percentage bill changes as there are a number of factors affecting these, including seasonality, usage patterns and power plans, that consumers are on dependent on the power companies they are with.

2.67 It should also be noted that Aurora has signalled it will review its pricing methodology in 2023, and this review could rebalance charges among Aurora's consumers. Such a review could change our estimates of the indicative price increases.

2.68 More detail on the assumptions and limitations of our modelling is contained in Attachment H.

The burden of higher prices on consumers

2.69 The rules under which we set CPPs does not allow us to take account of the tough economic outlook, and concerns of financial hardship for consumers, by shifting the burden of higher prices from consumers to Aurora, or onto some other party. Other parties can alter this burden on consumers (including Aurora itself), however.

2.69.1 Aurora can set its prices below the maximum level we determine, to further internalise some of the cost within Aurora, and relieve consumers of some of this burden. [42] We note that Aurora's shareholders have already borne around $50 million of the increased expenditure to date, with the rest recoverable from consumers.

2.69.2 Aurora could establish a hardship fund to assist more vulnerable consumers.

Delivery of the CPP investment plan – proposed additional ID requirements on Aurora

2.70 Our draft decision, and by 31 March 2021 our final decision, on a CPP for Aurora is one step on the journey to remediate Aurora's network. Aurora commenced that journey in 2017 but much remains to be done – a view that was emphasised to us by many of Aurora's consumers.

2.71 Aurora has already taken several steps to improve its ability to efficiently deliver its investment plan, and more initiatives are being implemented. We consider that Aurora has suitable planning in place to manage delivery of the investment.

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[42] Aurora has options itself to relieve the extent of the price shock by pricing under the cap (which will defer delivery into the future). To ensure that Aurora is not constrained in its ability to do so, our draft decision is to remove the cap on voluntary undercharging that currently applies to Aurora under DPP3.

2.72 In responding to the issues raised by Aurora's CPP application, and its performance, our draft policy decision is to impose a package of broader measures to improve Aurora's performance. It is proposed that some of these measures will be implemented via information disclosure regulation rather than as part of the CPP. These requirements would be tailored to reflect the specific circumstances of Aurora, the issues its network faces, and the need to ensure all parties are properly informed on the progress with its expenditure plan. These measures will complement the quality standards and incentives and allow consumers to assess the performance of Aurora through the provision and publication of information. These measures are intended to provide solutions over the longer-term to help incentivise Aurora to deliver its CPP effectively and improve its overall performance.

2.73 A summary of these information disclosure measures set against the performance risks these proposed measures will address is outlined in Table 2.8.

2.74 Those additional information requirements do not form part of this draft decision on the Aurora CPP. We propose to develop the details of these requirements in a separate process. This will provide all parties with more time to consider and provide input. To commence that process, we have set out our current thinking on the issues and how we propose to address these issues via information disclosure regulation in Chapter 5 and in Attachment I of this paper. We invite submissions on those proposed measures at this time. These will inform a revised draft ID decision, and a draft ID determination, which we intend release for detailed consultation in March 2020.

Table 2.8 Key risks sought to be addressed by information disclosure measures

Key risk/issue	Implication	Proposed information disclosure measures to address
Aurora may not have identified all the work that its network needs and may need some flexibility to include newly-identified or uncertain work	Necessary work on the network is not carried out	• Requiring Aurora to report on data quality process improvements
Aurora has been generous in estimating the costs for the required work resulting in us allowing higher than necessary price increases. Aurora might carry out its work inefficiently	Consumers pay too much	• Requiring Aurora to report on progress in terms of practices that improve its cost efficiency. This includes asset management, project quality assurance, cost estimation and data collection and data quality processes.
Aurora might not deliver all the planned work it has proposed	Consumers pay too much and necessary work on the network is not carried out when required	• Requiring Aurora to produce an Annual Delivery Report (ADR) • Requiring Aurora to present its ADR to its consumers in the regions • We propose performing our own analysis on the ADR to help consumers assess Aurora's progress • Requiring Aurora to obtain mid-period expert opinions on its progress on some areas of the ADR to provide further assurance
Aurora is not as transparent or responsive with its consumers as it should be	Eroding trust and confidence amongst consumers	• Requiring Aurora to engage with its consumers on its charter • Requiring Aurora to provide information on quality of services
Consumers might not understand the full impact of Aurora's planned works programme on the prices they will pay	Negative perception amongst consumers of the quality of CPP decisions	• Requiring Aurora to disclose information on regional pricing to make it easier for consumers to understand its pricing methodology

2.75 Further detail on these proposed additional ID measures is contained in Chapter 5 and Attachment I.

Trust and confidence

2.76 A lack of trust and confidence in Aurora and its network was evident in submissions and in our stakeholder engagement sessions in Otago. We cannot regulate to restore trust and confidence, rather Aurora will have to earn it back through its actions and performance over time.

2.77 Aurora has proposed to review its pricing methodology and its consumer compensation scheme. In our view, effective engagement by Aurora with its consumers on these reviews is an opportunity to start this process. We are also proposing to require Aurora to prepare an annual delivery report, detailing its progress and performance, and to engage with its consumers on that report.

2.78 But those measures alone will not be enough to restore trust and confidence. Ultimately, that will only be achieved by Aurora's performance in delivering this CPP and beyond to the satisfaction and long-term benefit of its consumers.

Energy efficiency, demand side management, and reducing energy losses

2.79 When applying Part 4, we are required to promote incentives, and avoid imposing disincentives, for suppliers of electricity lines services to invest in energy efficiency, demand side management, and to reduce energy losses.[43]

2.80 We consider that this draft decision is consistent with section 54Q of the Act which requires that the Commission must promote incentives, and must avoid imposing disincentives, for suppliers of electricity lines services to invest in energy efficiency and demand side management, and to reduce energy losses. In particular, we have retained the DPP3 alignment of capex and opex incentives rates in the IRIS mechanism, which means that traditional network investments (ie poles and wires) that are capex are not encouraged more than alternative opex investments, which could provide a similar network service such as demand management. Likewise, as for DPP3, the IMs require that Aurora's CPP must be a revenue cap (as opposed to price cap), which removes disincentives for Aurora to encourage energy efficiency and demand side management. Finally, the expenditure we are proposing to approve for Aurora's CPP explicitly includes allowance for expenditure on future networks capex to investigate the impact of electric vehicles, solar panels, and on distributed energy resources to defer network capex.

[43] Section 54Q.

The choice of assumptions for estimating cost growth over time

2.81 In this draft decision we have used the most recent forecasts of expected increases in certain costs (such as labour, copper, aluminium, and steel) to reflect the forecast growth in expenditure in nominal terms over the CPP regulatory period. However, in the case of expected changes in CPI, we have used forecasts from 2019 instead of the most recent CPI forecasts. This is because the IMs, as currently drafted, require us to use the forecasts of CPI from the Reserve Bank Monetary Policy Statement prior to the date the WACC rate was determined (25 September 2019) to model both the price path and forecast revaluation gains.[44]

2.82 Our current view is that, for the purposes of setting Aurora's price path (but not forecasting revaluation gains),[45] we would ideally use the most up-to-date forecasts of all cost components, including the CPI, to set the price path. Using up-to-date forecasts should produce more accurate estimates of costs over time than older forecasts. Using older, higher forecasts of CPI results in a lower starting price for Aurora (than would be the case if we used recent, lower forecasts of CPI) and this creates a risk, if actual changes in CPI prove to be similar to the most recent CPI forecasts, that over time Aurora may under-recover some of the revenues we propose to allow it to recover in this draft decision.

2.83 Aurora can propose an IM variation to allow the use of a more up-to-date forecast of CPI for the purpose of setting its price path. It could do so as part of its submission to this draft decision, and an IM variation to this effect would reduce the risk of revenue under-recovery noted in the previous paragraph. We discuss the potential for an IM variation further in Attachment J.

2.84 We note for completeness that the issues here are similar to the issues highlighted in submissions on our draft decision on how we would transition Wellington Electricity Lines Limited (WELL) from a CPP to a DPP.[46] A key difference in the current context compared to that for the WELL decision, is that as part of this Aurora CPP the IMs can be varied to use the most up-to-date forecasts of CPI when setting the price path.

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[44] ComCom, Electricity Distribution Services Input Methodologies Determination 2012, Clause 3.1.1(7) and clause 3.1.1(8). Specifically, the IMs require a forecast of a change in the headline CPI which has been included in the Monetary Policy Statement last issued by the Reserve Bank of New Zealand prior to the determination of WACC.

[45] Forecast revaluation gains should reflect expected CPI inflation at the time when the WACC was determined to be consistent with ex ante real financial capital maintenance. ComCom, Input methodologies review decisions, Framework for the IM review, 20 December 2016, para X18.1.

[46] Further information can be found at: https://comcom.govt.nz/regulated-industries/electricity-lines/projects/wellington-electricitys-20222025-dpp

Chapter 3 Our evaluation approach for Aurora's CPP

Purpose of this chapter

3.1 This chapter discusses our approach for evaluating Aurora's CPP proposal. This chapter explains the approach, especially how we dealt with the verifier's findings, in our evaluation of Aurora's CPP proposal. For those matters that are not evaluated elsewhere in this paper, it not only discusses the approach, but also undertakes the evaluation. The chapter also covers the evaluation approach for assessing the term of Aurora's CPP proposal.

Structure of this chapter

3.2 The structure of this chapter is as follows:

3.2.1 the evaluation criteria we must follow;

3.2.2 how we addressed the Verifier's findings;

3.2.3 how we evaluated Aurora's CPP proposal against each of the evaluation criteria; and

3.2.4 our assessment of the proposed duration of Aurora's CPP.

The CPP evaluation criteria

3.3 The criteria that we must use to evaluate a CPP are detailed below.[47]

Evaluation criteria for customised price-quality path proposals
The Commission will use the following evaluation criteria to assess each CPP proposal:
a) whether the proposal is consistent with the input methodologies;
b) the extent to which the proposal promotes the purpose of Part 4 of the Act;
c) whether data, analysis, and assumptions underpinning the proposal are fit for the purpose of determining a CPP;
d) whether the proposed capital and operating expenditure meet the expenditure objective;
e) the extent to which any proposed changes to quality standards reflect what the applicant can realistically achieve taking into account statistical analysis of past SAIDI and SAIFI performance; and/or (ii) the level of investment provided for in the proposal; and
f) the extent to which the CPP applicant has consulted with consumers on its CPP proposal; and the proposal is supported by consumers, where relevant.

3.4 These criteria are intended to ensure that our determination of a CPP promotes the purpose of Part 4 of the Commerce Act. The rationale for the criteria and an explanation of our interpretation of the criteria are provided in Attachment A of this paper – our regulatory framework and evaluation approach for setting Aurora's CPP.

Duration of CPP

3.5 Additionally, we are required to consider the term of Aurora's CPP. The default term for a CPP is five years.[48] However, we may set a CPP of a shorter duration (to a minimum of three years) if we consider that the shorter duration will better meet the purpose of Part 4 of the Act.[49]

3.6 It is our decision whether to depart from a five-year term or not, and we can consider whether this better meets the purpose of Part 4 at our own initiative or if it is sought by a CPP applicant.

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[47] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC, Clause 5.2.

[48] Commerce Act 1986, Section 53W(1).

[49] Commerce Act 1986, Section 53W(2).

We must set a CPP that satisfies the evaluation criteria

3.7 If we conclude that a CPP proposal fully satisfies the evaluation criteria and meets the statutory requirements, then we would generally reach a draft decision based on the proposal. If, however, we conclude that that CPP proposal, in part or in full, does not satisfy the evaluation criteria and/or doesn't meet the statutory requirement, then further work is required by us to determine a CPP.

3.8 The depth and extent of our analysis for this second step will vary for different customised price-quality path proposals, depending on the robustness and quality of the proposal (as reflected in our evaluation conclusions from step one). Other factors such as the size and complexity of the proposal will also affect the amount of analysis required in step two.

How we dealt with the Verifier's findings in our assessment of Aurora's CPP

3.9 This chapter explains the approach, especially how we dealt with the Verifier's findings, in our evaluation of Aurora's CPP proposal.

3.10 The starting point for our assessment of whether the proposal meets the evaluation criteria was the review undertaken by the independent verifier.

We have had regard to the findings of the independent verifier

3.11 The CPP process required Aurora to have its CPP proposal reviewed by an independent verifier.[50]

3.12 The verification process is intended to add value to the quality of CPP proposals and to our decision-making by testing, in advance of submission, the assumptions that underpin forecast information on major capital projects, operating expenditure, and energy demand.[51]

3.13 We have regard to the findings of the verifier but are not bound by them in making our draft decisions.

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[50] The requirements for CPP proposals to be verified are set out in the IMs. See: Electricity Distribution Services Input Methodologies Determination 2012 Schedule G pp 232-241 available at: http://www.comcom.govt.nz/dmsdocument/15235

[51] The role of the verifier was discussed in more detail in the 'verification requirements' chapter of our recent IM review decision paper on the CPP requirements. This paper can be downloaded at the following link: http://comcom.govt.nz/dmsdocument/15107

The verifier's role and obligations

3.14 The verifier's role, purpose and obligations are provided for in schedule G2 of the Input Methodologies

Schedule G2 of the input methodologies
The verifier's role, purpose and obligations include- **a.** engaging with the CPP applicant in an independent manner in accordance with this Terms of Reference; b. assessing the extent to which the CPP applicant's policies allow the CPP applicant to meet the expenditure objective; c. assessing the extent to which the CPP applicant's policies have been implemented; d. prior to the Commission's assessment of the CPP proposal, assessing whether the CPP applicant has provided the verifier with the information specified in clause 5.5.2(3); e. prior to the Commission's assessment of the CPP proposal, providing an opinion to the CPP applicant on whether the CPP applicant's capex forecasts, opex forecasts and key assumptions meet the expenditure objective; f. prior to the Commission's assessment of the CPP proposal, assessing the extent to which the CPP applicant is able to deliver its capex forecast and opex forecast during the CPP regulatory period; g. prior to the Commission's assessment of the CPP proposal, providing an opinion on the extent and effectiveness of the CPP applicant's consultation with its consumers; and h. providing a list of the key issues which it considers we should focus on when assessing the CPP proposal.

3.15 G2 (b), G2 (c,) G2 (e) and G2 (f) relate closely to our evaluation criteria (e) - whether the proposed capital and operating expenditure meet the expenditure objective.

3.16 G2 (g) relates closely to our evaluation criteria (f) - the extent to which the CPP applicant has consulted with consumers on its CPP proposal; and the proposal is supported by consumers, where relevant.

3.17 G2 (d) relates to our evaluation criteria (c) as they are both concerned with the provision of necessary information.

3.18 G2 (h) relates to criteria (c,) (d), (e) and (f) as the verifier could provide a list of matters in relation to the areas we should focus on. Criterion G2 (h) is particularly relevant because it influences how much scrutiny we apply to the assessment.

Farrier Swier Consulting acted as the verifier for Aurora's CPP

3.19 In April 2019 we agreed with Aurora to appoint Farrier Swier Consulting (Farrier Swier) as the independent verifier for Aurora's CPP proposal. Aurora undertook a request for proposal process to identify a suitable verifier. We reviewed Farrier Swier's proposal for the work and we were satisfied that Farrier Swier's experience (in New Zealand and abroad), which included it being the verifier for the 2016 Powerco CPP proposal, suitably qualified it to verify Aurora's CPP proposal. We were also satisfied that Farrier Swier was independent and could provide an impartial view on Aurora's CPP. Farrier Swier was supported in its work by GHD (an engineering consultancy).

3.20 Farrier Swier signed a deed with us and Aurora requiring it to verify Aurora's proposal in line with the rules set out in the Part 4 Input Methodologies. The deed provided that Farrier Swier had an overriding duty to assist the Commission as an independent expert with relevant matters within Farrier Swier's areas of expertise.

3.21 Farrier Swier produced a verification report, which drew on a nine-month (July 2019 to May 2020) period of information review and iterative analysis. The report can be found at this link. https://comcom.govt.nz/__data/assets/pdf_file/0028/218593/Farrier-Swier-Consulting-Pty-Ltd-and-GHD-Pty-Ltd-Aurora-Energys-CPP-application-Verification-report-8-June-2020.pdf.

3.22 During this time, Farrier Swier and GHD:

3.22.1 attended a number of tripartite workshops with Aurora and our staff;

3.22.2 conducted visits to Aurora's Dunedin offices including network site visits;

3.22.3 attended a weeklong series of workshops by teleconference hosted by Aurora staff; and

3.22.4 formally submitted questions to Aurora, resulting in over 450 responses.

The Verifier's findings

3.23 The verifier's assessment of Aurora's CPP proposal against the schedule G2 IM requirements provided on page 15 of its report.[52] In summary the verifier found that:

3.23.1 Aurora's policies generally appear to be of the nature and quality required to meet the expenditure objective. The verifier identified some areas where policies did not yet exist.

3.23.2 On the whole Aurora's capex and opex forecasts are consistent with its policies.

3.23.3 There are many aspects of Aurora capex and opex forecasts and supporting assumptions that support the expenditure objective. However, it was not possible to conclude that the total proposed expenditure over the CPP period fully meets the expenditure objective.

3.23.4 Aurora undertook substantial consumer consultation and has prepared and made available a significant amount of material, consistent with requirements of the input methodologies. Given that Aurora's proposals have changed somewhat since consultation occurred, the Commission's public consultation will provide consumers with an opportunity to engage with those changes.

3.23.5 The core material and models provided by Aurora are of an appropriate standard.

3.23.6 The Commission may wish to consider a set of identified focus areas for further assessment.

3.24 We consider that the verifier has, in many instances in its review, provided us with a positive and unqualified level of assurance that proposed expenditure has met the expenditure objective. In other instances, particularly in its review of the opex portfolio, it has provided us with qualified levels of assurance that, subject to us performing our own investigation, expenditure has met the expenditure objective.

3.25 As a result of the verification process, we examined many of the verifier qualifications to assure ourselves that expenditure met the expenditure objective. In some instances, this has resulted in us deciding that reductions in proposed expenditure amounts were necessary.

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[52] Verification Report: Aurora Energy CPP Application. Farrier Swier, 8 June 2020.

3.26 The intent of verification is to 'frontload' as much CPP evaluation work as possible, and to assist us in making the most effective use of the limited statutory timeframe to evaluate a proposal and determine a CPP. This includes the verifier highlighting areas of a proposal that it considers we should focus on in our own assessment of proposal material.

Our consideration of the verifier's findings

3.27 Following Aurora's submission of its CPP proposal, we have critically reviewed the verification report and the techniques and methods the verifier used to test Aurora's proposal. This included a two-day workshop with the verifier in June 2020 to test the verifier's findings.

3.28 We engaged Strata Energy Consulting (Strata) to assist us with our review of the verification report, including further analysis of parts of the CPP proposal the verifier had identified as needing more scrutiny, or that it had not assessed. For example, the verifier only assessed approximately 66% of the total capex programme proposed in Aurora's CPP.

3.29 The detail of our assessments and reviews of the verifier's findings are contained in the relevant attachments to this paper:

3.29.1 Attachment C: Setting the draft quality standards for reliability

3.29.2 Attachment D: Capex analysis

3.29.3 Attachment E: Opex analysis

3.29.4 Attachment F: Regulatory expenditure incentives

3.29.5 Attachment G: Modelling of the draft CPP price

3.29.6 Attachment H: Price Impacts

3.30 As a result of our assessment and review, the draft decision materially differs in parts from that verified. This difference mainly arises because:

3.30.1 we investigated matters the verifier had not verified;

3.30.2 we investigated further matters that the verifier had verified but had suggested we scrutinise further; and

3.30.3 we also undertook further investigations into matters that the verifier had verified.

How we evaluated Aurora's CPP proposal against the criteria

3.31 This section provides an explanation of how we applied each of the six evaluation criteria in assessing Aurora's proposal, and in setting the CPP.

3.32 When assessing the CPP proposal against the criteria we generally had regard to the following factors as applicable:

3.32.1 the content of the CPP proposal itself;

3.32.2 the verifier's report (and our own discussions with the verifier);

3.32.3 our own review, undertaken with assistance from our expert consultant Strata Energy,

3.32.4 further material provided by Aurora on our request; and

3.32.5 submissions from stakeholders (including Aurora itself) to us on Aurora's proposal, once published, and on our Issues Paper package.

3.33 When applying the evaluation criteria, we first considered the extent to which the proposal meets the criteria. To the extent that we do not consider that the proposal meets the criteria we then reach a view as to an alternative CPP that will meet the criteria. This approach has meant that our draft decision includes aspects of the proposal mixed with aspects that we have determined.

3.34 Our evaluation against the six criteria is outlined below.

Criteria A - Whether the proposal is consistent with the relevant input methodologies

3.35 We were required to assess whether Aurora's CPP proposal was consistent with the relevant input methodologies that relate to the process for, and content of, a CPP proposal.

3.36 After assessing the proposal against the input methodologies, on 7 August 2020 we determined that Aurora's CPP proposal was consistent with the relevant IMs. This was prior to us accepting the CPP proposal.

Criteria B - The extent to which the proposal will promote the purpose of Part 4

3.37 Our overarching purpose is to determine a CPP for Aurora that will promote the long-term benefits of its consumers by promoting outcomes that are consistent with those produced in competitive markets such that Aurora:

3.37.1 has incentives to innovate and to invest, including in replacement, upgraded, and new assets;

3.37.2 has incentives to improve efficiency and provide services at a quality that reflects consumer demands;

3.37.3 shares with consumers the benefits of efficiency gains in the supply of the regulated goods or services, including through lower prices; and

3.37.4 is limited in its ability to extract excessive profits.

3.38 The Part 4 purpose has guided all of our thinking and analysis on Aurora's CPP. The assessment of the five other CPP criteria has been undertaken within a lens of promoting the statutory purpose. Accordingly, our approach to assessing these other five criteria, intrinsically covers the approach for assessing our statutory purpose.

3.39 This is illustrated in our assessment of proposed expenditure on major capex projects. For instance, the expenditure objective requires that Aurora's proposed expenditure reflects the efficient costs that a prudent supplier would require to provide services at the appropriate standards and in compliance with applicable regulatory obligations. How we have done this is discussed in detail in Attachment D. However, in short, we have looked at the cost of delivering investment at the right time and level of output to meet consumers' needs, now and in the long-term.

3.40 The assessment of Aurora's CPP involves the exercise of regulatory judgement in setting an appropriate price-quality path that, as a whole and in conjunction with the other aspects of the regulatory regime, will provide incentives for Aurora to act in a manner consistent with the Part 4 purpose.[53] We are not required to promote every limb of the Part 4 purpose in every aspect of the individual draft decisions we have made. As a whole the decision must satisfy the Part 4 purpose.

3.41 Our evaluation is that the proposal as amended in this draft decision will meet the purpose of Part 4.

Criteria C - Whether the information in the proposal is fit for purpose

3.42 The information in a proposal must be sufficient in detail and quality to allow us to undertake our assessment.[54] The assumptions used must also be robust.

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[53] For a more extensive discussion of our approach to the purpose of Part 4 see the Commerce Commission "Input Methodologies (Electricity Distribution and Gas Pipeline Services) Reasons Paper" (22 December 2010), paras 2.4.1-2.6.33.

[54] Commerce Commission "Input Methodologies (Electricity Distribution and Gas Pipeline Services) Reasons Paper" (22 December 2010), para 9.4.8.

3.43 We assessed whether the information was fit for purpose with respect to the proposed quality standards, each category of expenditure (capex and opex) and in terms of the price and quality incentives and price impacts.

3.44 Aurora acknowledged in various parts of its proposal that insufficient and/or unreliable data impacted on its ability to provide certain information. This was especially in relation to its forecasting. Aurora accommodated its data deficiencies by relying on other methods. Our assessment considered the robustness of those other methods, and whether they reasonably filled the gaps left by the data deficiencies.

3.45 Where we considered the information relating to parts of the proposal was not fit for purpose, we requested further information from Aurora. Similarly, where we had doubts about the appropriateness or robustness of an assumption, we sought further explanation for the assumption or used a more appropriate assumption.

3.46 The assessment is contained in the attachments as described below:

3.46.1 Attachment C: Setting the draft quality standards for reliability

3.46.2 Attachment D: Capex analysis

3.46.3 Attachment E: Opex analysis

Criteria D - Whether the proposed expenditure reflects the expenditure objective

3.47 The expenditure objective requires us to assess Aurora's proposed capital expenditure and operating expenditure on the basis that it reflects the efficient costs that a prudent supplier, subject to price-quality regulation, would require to:

3.47.1 meet or manage the expected demand for electricity distribution services, at appropriate service standards, during the customised price-quality path regulatory period and over the longer term; and

3.47.2 comply with applicable regulatory obligations associated with those services.[55]

3.48 The verifier's report was particularly relevant to our assessment of the CPP proposal against the expenditure objective. We also carried out our own analysis, assisted in some respects by an expert consultant we instructed (Strata Energy).

[55] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26, clause 1.1.4.

3.49 We focussed on those projects and programmes that the verifier had not reviewed or suggested that we look at more closely. We tested expenditure in a top-down, bottom-up manner.

3.50 The top-down review focussed on the requirements that affect all aspects of the capital and operational expenditure forecast in a CPP proposal. This includes the policy and planning standards used, and the approach to prioritisation, demand forecasts, cost estimation methods (including contingencies), procurement efficiency and deliverability.

3.51 The bottom-up review focussed at an individual project and programme level for each of the verified identified programmes. It assessed whether the top-down frameworks had been applied in practice. The bottom-up review included additional project and programme specific requirements such as replacement modelling and model inputs, forecast reasonableness testing and expenditure relationships with operational spending and other capital projects.

3.52 In line with the proportionate scrutiny principle, the level of detail of our assessment varied depending on our concerns and any concerns expressed by the independent verifier, as well as the materiality of any proposed expenditure. Our assessment of whether Aurora's CPP proposal reflected the expenditure objective is contained within two attachments to this paper:

3.52.1 Attachment D: Capex analysis; and

3.52.2 Attachment E: Opex analysis.

Criteria E - Whether the proposed quality standard is realistically achievable

3.53 In considering Aurora's proposed quality standard variation, we must assess whether it better meets the realistically achievable performance of Aurora.[56]

3.54 Our evaluation of whether the quality standard was realistically achievable was informed by the verifier's report. We also carried out our own analysis, assisted in some respects by an expert consultant we instructed (Strata Energy).

3.55 In line with the proportionate scrutiny principle, the level of detail of our assessment varied depending on our concerns and any concerns expressed by the independent verifier, as well as the materiality of any proposed expenditure.

[56] We evaluated Aurora's proposed quality standards and incentives against criteria b and f as well as e.

3.56 Our assessment of whether the proposed quality standard is realistically achievable is contained within Attachment C: Setting the draft quality standards for reliability.

Criteria F - The extent of Aurora's consultation with its consumers and the support from its consumers

3.57 One of our criteria is considering the extent of Aurora's consultation. There are two limbs to assessing this criteria:

3.57.1 the extent to which Aurora has consulted with consumers on its proposal; and

3.57.2 the extent to which the proposal is supported by consumers, where relevant.

3.58 The first limb informs the second. The greater the extent to which Aurora has consulted with consumers, the more we can rely on it in terms of the extent to which it indicates support of the proposal.

3.59 We acknowledge that the supplier may have a better understanding of the need for network investment than consumers, which is why consumer support is not required. Instead, it is something we will take into account.

3.60 We consider that the extent to which Aurora has consulted with its consumers was mixed. On the one hand, it took steps to consult which have not been taken by previous CPP applicants, and the verifier commented positively on Aurora's consultation. On the other hand, some consumers expressed negative views on Aurora's consultation to us, and we noted some issues were expressed in a way that may not have been easily understood by consumers.

3.61 The extent to which consumers supported the proposal was also mixed. Several consumers supported aspects of the proposal. For example;

> There is no doubt that extra investment is needed to bring the Aurora network up to a modern, secure and reliable utility service. [57]
>
> Don't think any further projects should be deferred. We are in this state now because things have been deferred. We need to finally invest.[58]
>
> Get it done quickly. They have failed to invest since they bought out the Central Otago electric power board lines. They have chosen to give dividends to Dunedin City instead of investing in the lines. There is a risk of other outages like Clyde had in cold months. Now is a good time to invest as workers are available due to downturn. Getting the job done properly instead of half pie is important.[59]

3.62 Several consumers did not support the proposal or disagreed with aspects of it. For example:

> I object to Aurora's application for the following reasons…[60]
>
> Allowing this process to proceed while, effectively, no consumers are aware that the projected price rises are open ended and volumetric in nature is unconscionable.[61]
>
> Allowing the CPP is sending all of the wrong signals to other council owned utilities.[62]

3.63 We assess the extent to which consumers support the proposal as it relates to particular draft decisions we made in the attachments.

Our assessment of the duration of Aurora's CPP

3.64 Separate to our assessment on the evaluation criteria for a customised price-quality path proposal is a requirement to assess the term of a CPP.

3.65 The default term for a CPP is five years. However, we may set a CPP of a shorter duration (to a minimum of three years) if we consider that the shorter duration will better meet the purpose of Part 4 of the Act.

3.66 It is our decision whether to depart from a five-year period or not, and we can consider whether this better meets the purpose of Part 4 at our own initiative or if it is sought by a CPP applicant.

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57 Phill Hunt "Submission on Aurora Energy's CPP Issues paper" (22 August 2020)."

58 Item 33 1-50 "Submission on Aurora Energy's CPP Issues paper" (27 August 2020).

59 Item 12 1-50 "Submission on Aurora Energy's CPP Issues paper" (27 August 2020).

60 Niamh Shaw (Neeve) "Submission on Aurora Energy's CPP Issues paper" (27 August 2020).

61 Richard Healey "Submission on Aurora Energy's CPP Issues paper" (27 August 2020).

62 0479 "Submission on Aurora Energy's CPP Issues paper" (19 August 2020).

3.67 Aurora sought a three-year CPP period because it considered that a three-year period would better meet the purposes of the Act. The basis of their reasoning for a three-year period was that there was greater than normal uncertainty in forecasting of expenditure and the resulting reliability impacts for years four and five of a five-year CPP period:[63]

3.68 We have assessed whether we should approve a three-year CPP period in Attachment B of this paper. Our approach to the assessment was to consider the following matters:

3.68.1 The conceptual benefits of a shorter period versus a longer period—there are advantages and disadvantages of each approach. A shorter CPP period reduces the risk of Aurora not having sufficient funding where issues are identified mid-period but which cannot be taken account of in the CPP revenue allowances until the next period. However, a shorter CPP period would also require Aurora to begin work on its next investment application earlier, which could place strain on resources available to undertake the work required to fix its network. A longer CPP provides certainty of prices and quality for both consumers and Aurora for a longer period of time.

3.68.2 The quality of Aurora's forecasts that underpin its CPP. While Aurora faces challenges in its asset condition data and systems, the verifier had confidence in Aurora's forecasting approaches and did not think data for years four and five of Aurora's data involved significantly greater degree of uncertainty than the first three years of the proposal.

3.68.3 The type of regulation that would apply to Aurora in years four and five if it were not on a CPP. If Aurora's CPP expired after three years it may potentially revert back to the default price-quality path that did not suit its needs previously. Aurora has signalled its intention to apply for a second CPP. However, the Commerce Act appears not to allow them to do this until 2026, so if we determined a three-year CPP there would be a gap.

[63] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), p. 1, Executive Summary, 1.1 Introduction and the CPP Process, 1.1.1 Introduction, para. 3-4.

3.68.4 Whether a five-year CPP can be adapted to address the uncertainty Aurora faces—Aurora's concern is that the better data that becomes available during the CPP period may identify further investments that are required which its CPP does not allow for. Our input methodologies can allow for additional expenditure mid-period. However, these methodologies have specific triggers which may or may not apply to Aurora's circumstances. We are proposing some adjustments to the input methodologies to accommodate future uncertainty. To make adjustments we would vary the input methodologies that apply to Aurora with Aurora's agreement. We are consulting on the proposed input methodologies' variations as part of our draft decision.

3.69 Following our assessment, the draft decision is that a five-year CPP period better meets the Part 4 purpose.

Chapter 4 Community and stakeholder engagement

Purpose of this chapter

4.1 This chapter outlines the stakeholder engagement and consultation we have undertaken to date on Aurora's CPP and the core issues national and regional stakeholders raised with us. We also discuss those aspects of the draft decision that relate to issues raised and how we are managing concerns that are outside the scope of this process.

Structure of this chapter

4.2 This chapter outlines:

4.2.1 the role of stakeholder consultation and engagement in our CPP decision-making;

4.2.2 the approach we have taken to stakeholder consultation and engagement, to date, on Aurora's CPP; and

4.2.3 the key issues (themes) that we have heard so far from stakeholders through the consultation and engagement process we have run. We group these themes under three broad headings: issues we can address in the CPP; issues we can address using other tools such as information disclosure; and issues that are outside our mandate.

The role of stakeholder consultation and engagement in our CPP decision-making

4.3 As we outlined in Chapter 3, our role is to determine a CPP against the regulatory evaluation criteria and also determine it in accordance with the statutory framework having regard to the purpose of Part 4 of the Act.

4.4 The consultation and engagement we undertake with stakeholders, provides us with information that assists our application of the evaluation criteria and helps us to make a decision on Aurora's CPP. For example, the feedback we received from consultation on the Issues Paper package helps us assess whether the expenditure criteria for the proposed capex and opex have been met (ie is efficient). Further, the feedback we receive on this draft decision paper will similarly assist us.

4.5 We note that there is a mix of views in many aspects of the stakeholder submissions and engagement, and we must necessarily make judgments having regard to that mix of views as well as the evaluation criteria and statutory criteria (discussed below). Consultation and stakeholder engagement is only one part of what we consider when assessing a proposal against the evaluation criteria. We also look at what Aurora says as part of the proposal itself, the views of the independent verifier and the opinion of expert consultants we engage.

4.6 Ultimately determining a CPP is our decision, so we rely on our own judgment in applying the evaluation criteria. This involves us promoting the long -term benefits of consumers by balancing the section 52A matters we are required to have regard to so that Aurora:

4.6.1 has incentives to innovate and to invest, including in replacement, upgraded, and new assets; and

4.6.2 has incentives to improve efficiency and provide services at a quality that reflects consumer demands; and

4.6.3 shares with consumers the benefits of efficiency gains in the supply of the regulated goods or services, including through lower prices; and

4.6.4 is limited in its ability to extract excessive profits.

4.7 This means there are likely to be aspects of the CPP where we have made decisions that are contrary to the weight of submissions on the Issue paper and the wider feedback we heard.

Our approach to stakeholder consultation and engagement

4.8 The scale of Aurora's proposed investment and related price increases, along with the known community concern over network safety and power outages, meant that public engagement with this process has been, and will continue to be, particularly vital. The role we see for Aurora’s customers in the accountability mechanisms further emphasises the importance of community consultation and engagement.

4.9 We received Aurora's CPP proposal on 12 June 2020 and published its full proposal on our website on 16 June 2020.

4.10 On 30 July we released an Issues Paper package that set out the key issues we had identified from our initial assessment of Aurora's proposal that we wanted to hear from stakeholders about. This was supported by fact sheets on Aurora's investment plan and the process we would be following in assessing its CPP.

4.11 To help facilitate feedback, we provided a template submission form that stakeholders could fill out to provide us with their views on several key topics, including the impact of proposed price rises and more planned power outages, Aurora's ability to deliver on its plan, and its approach to community consultation.

4.12 Shortly after releasing our Issues Paper package we held a series of stakeholder engagement sessions to discuss Aurora's CPP proposal and our role as the decision-maker with local residents in Dunedin, Alexandra and Cromwell. Planned meetings in Queenstown and Wanaka unfortunately needed to be cancelled due to the change in Covid-19 alert levels, and were instead held online.

4.13 In addition to the stakeholder engagement sessions, on 6, 10 and 11 August 2020 (physical) and 20 and 21 August (online) we also met with Aurora Energy's Customer Advisory Panel (CAP). The CAP panel was made up of community representatives from a range of business, council and public advocacy groups who were tasked with providing a customer voice for Aurora as it developed and consulted on its proposed CPP.

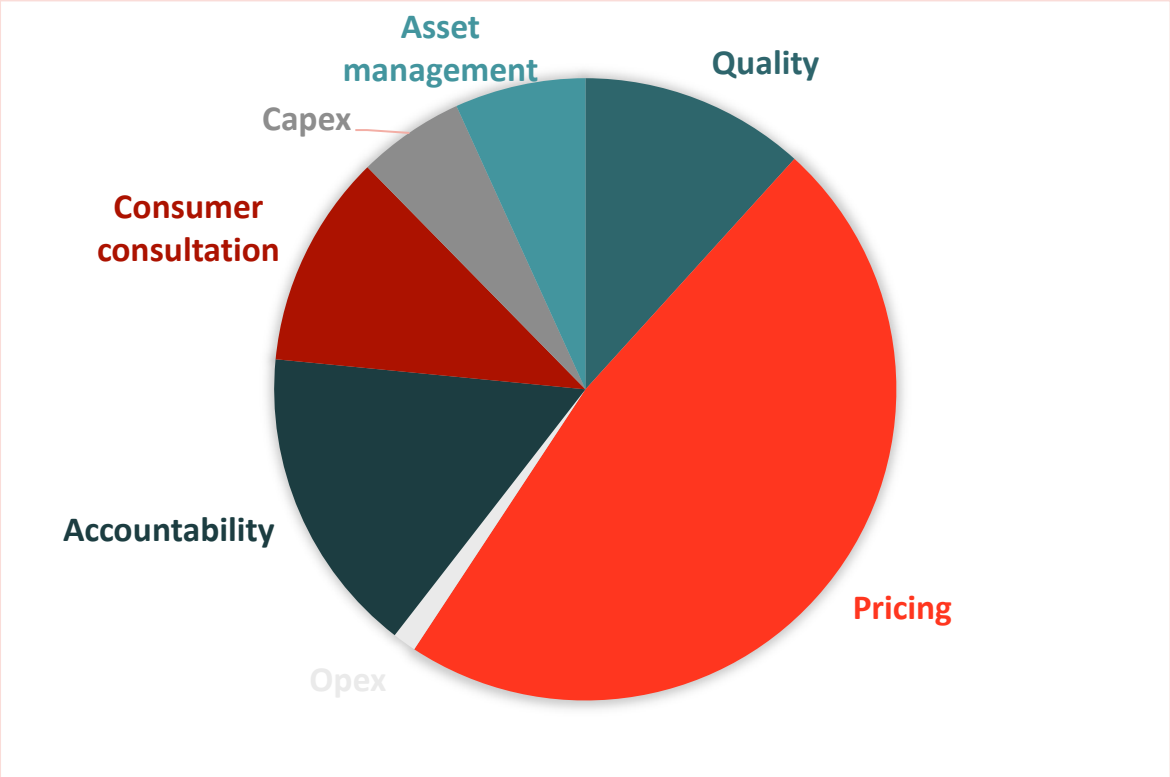
4.14 The feedback we received when talking with stakeholders and residents in Dunedin, Central Otago and Queenstown Lakes broadly covered the same themes and issues addressed in the written submissions we received.

4.15 The stakeholder engagement sessions we hosted were less formal by design and as such the feedback reflected residents' personal experiences with Aurora, its service levels and communication. Many attendees at these sessions outlined negative experiences they have had with Aurora over many years, which they explained had resulted in them having little, if any, trust in its ability to deliver a safe and reliable network or manage the financial impacts of this work.

4.16 In response to Aurora's CPP proposal and our Issues Paper package, we received 152 written submissions. Of these approximately 80% were from consumers.

4.17 Collectively, the submissions we received dealt with a broad range of issues.

Figure 4.1 Proportion of submissions by topic



4.18 We published the written submissions we received together with a summary of the themes from the stakeholder engagement sessions. We notified interested parties that we would accept and consider any comments on those materials as cross submissions. Aurora and two of its customers provided cross-submissions.

4.19 Aurora's cross submission dealt with the consumer impact of its CPP proposal, responded to comments on its proposal and contained an appendix that dealt with a range of issues including affordability, regional pricing and, the effectiveness of its consultation.

4.20 We appreciate the effort stakeholders made to provide submissions and attend the public events, particularly given the Covid-19 environment we are working within. We have seen greater individual consumer engagement on this energy regulatory process than any other we have overseen, which reflects the importance of Aurora's service to its local communities and the depth of feeling and concern they hold. We welcome the engagement and thank everyone that participated and provided submissions.

Key issues raised

4.21 We received feedback on Aurora's proposal through a number of avenues, the main ones being:

4.21.1 written feedback on the Aurora CPP proposal we published;

4.21.2 written feedback on the Issues Paper package and accompanying documents we published; and

4.21.3 oral feedback at the stakeholder engagement sessions we held and with our meeting with the CAP.

4.22 This section on the key issues raised refers to all the feedback.

4.23 Our Issues Paper package included a number of questions for stakeholders. These were designed to facilitate stakeholders' response on key issues we identified with Aurora's CPP proposal, such as the pricing impact, reliability improvements, the appropriateness of Aurora's capex and opex spend, and its ability to deliver on its proposed work programme. Alongside the Issues Paper package, we released a "Consumer feedback form on key issues paper" which asked similar questions of stakeholders but in a shorter more "consumer-friendly" form.

4.24 For the purposes of detailing the major issues raised and discussing the implications of our draft decision in relation to the issue in question, we have broken them down into three broad categories:

4.24.1 issues we can deal with and that we consider are best dealt with using the mechanisms and tools that are provided for under the CPP regime;

4.24.2 issues within our responsibility that either cannot be dealt with, or are best not dealt with, using the mechanisms and tools available to us under the CPP regime, or in our view are best managed using our other statutory tools (such as information disclosure); and

4.24.3 issues outside our statutory mandate.

4.25 The issues raised by stakeholders in the third category were in part due to our question in the "Consumer feedback form on the key issues paper" which invited stakeholders to bring anything else to our attention.

4.26 We appreciate stakeholders' concern that we have the wider context to consider as well as their responses to our more specific questions. While this wider context is outside our statutory mandate, some of the issues raised fall within the mandate and responsibility of other government agencies, some are broad policy matters that are matters for government itself, and others are governance matters for the shareholder of Aurora.

Issues we can consider within the CPP regime

4.27 The core issues consumers raised with Aurora's CPP proposal that we can deal with under the CPP regime include:

4.27.1 revenue and price impact;

4.27.2 service quality and reliability;

4.27.3 capital expenditure;

4.27.4 operational expenditure; and

4.27.5 Aurora's consultation on its CPP.

4.28 Each of these is discussed in greater detail below. In describing these core issues raised, we have provided context and balance by including at the start of each issue, a short description of Aurora's proposal in relation to that issue. Where we have thought it beneficial, we have also captured the relevant points from Aurora's submission and cross submission on our Issues Paper package.

Pricing

4.29 In its proposal, Aurora estimated for its three-year CPP that its residential customers could expect a monthly increase in lines charges of between $20.30 to $30.90 from regulatory year 2022, with residential customers in Central Otago facing the largest increases. For small businesses the price increase was estimated to be between $40 to $53 with business customers in Dunedin facing the largest increase.[64]

[64] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), p. 30

4.30 Aurora indicated in its submission that it had been clear from the outset that its CPP investment plan would impact on its prices. It indicated that price increases could not be avoided and that its revenue had to increase to cover the additional expenditure needed to repair its network. It went on to detail the steps it took to reduce the price shock to customers.[65] Aurora in its submission, and cross submission repeated the point that prices need to be raised in line with the increased investment under its proposed CPP to keep its business financially viable.[66],[67]

4.31 The price impact of Aurora's proposed CPP was a significant concern for many stakeholders, with many saying that the price impacts were unaffordable to the degree that the CPP proposal should not proceed or be fundamentally changed.[68,69,70,71]

4.32 We were told that the estimate of the price increase indicated by Aurora was inaccurate and that the actual increase would likely be substantially higher, particularly for customers outside Dunedin. Stakeholders took particular issue with Aurora's regional differences in pricing, whereby residents in Central Otago pay considerably more for lines services than residents in Dunedin.

4.33 Some stakeholders told us the proposed price rises would impose financial stress on many of Aurora's customers and were especially problematic for those on fixed incomes who may already be struggling due to the impacts of Covid-19 (notably superannuitants and those on welfare).

4.34 Some stakeholders told us that price rises would also create difficulties for a region that has cold winters and is increasingly reliant on electric heating for air-quality reasons. In addition, we heard price rises hurt the competitiveness and viability of some commercial customers who feared they would face large price rises at a time of reduced demand in the economy. [72]

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65 Aurora Energy "Submission on Aurora Energy's Issues paper" (20 August 2020), p. 2-3.

66 Aurora Energy "Submission on Aurora Energy's Issues paper" (20 August 2020), p. 1 and p. 3.

67 Aurora Energy "Cross-submission on Aurora Energy's CPP Issues paper" (18 September 2020).p. 4

68 Cromwell Electrical Trust Action Group "Submission on Aurora Energy's CPP Issues paper" (20 August 2020).

69 Pioneer Energy "Submission on Aurora Energy's CPP Issues paper" (20 August 2020).

70 "Summary of Dunedin stakeholder meeting on Aurora's CPP" (6 August 2020).

71 Queenstown Lakes District Council "Submission on Aurora Energy's Issues paper" (20 August 2020).

72 Dairy Creek Limited Partnership "Submission on Aurora Energy's CPP Issues paper" (20 August 2020).

4.35 There were mixed views on revenue and price smoothing - spreading the cost over a longer period to help reduce the bill shock of an otherwise sizeable immediate price increase. Some stakeholders wanted prices smoothed as proposed by Aurora, while others suggesting alternative smoothing approaches, and some preferred no smoothing. [73] [74]

Implications of our draft decision

4.36 We accept the communities' concerns about the potential financial impact of price rises on individuals and businesses. While we cannot address energy poverty concerns in terms of consumers' ability to pay their electricity bills, we have been mindful of the impact of expenditure on revenue increases, which flow through to prices as much as possible within the legal constraints of our regime.

4.37 In order for Aurora to invest at the level required to make its network safe and maintain reliability, its customers will need to pay a higher price to cover the cost of this work.

4.38 We have proposed reductions in Aurora's CPP capex and opex allowances because we did not consider that all of Aurora's proposed expenditure reflected the efficient costs of a prudent supplier. These reductions combined with the revenue smoothing that we propose would reduce the price impacts of Aurora's CPP.[75]

73 NZ Chamber of Commerce Queenstown "Submission on Aurora Energy's CPP Issues paper" (27 August 2020).

74 Mercury "Submission on Aurora Energy's CPP Issues paper" (20 August 2020).

75 The original Aurora price estimates were prepared using different assumptions to ours. For example, Aurora's estimates excluded GST and backed-out the effects of inflation. We have restated Aurora's estimates to include GST and the likely impact of inflation since these are always part of the electricity price consumers pay. We also adopt a different assumption to Aurora in spreading some historic costs and have restated its estimates accordingly. There are also a number of factors outside of the scope of the Commission's decision that mean the price consumers' experience in reality will differ from our estimates. For example, wholesale or generation costs may fluctuate due to market conditions, and we only control the network revenues Aurora may recover from its customers.

Table 4.1 Indicative monthly electricity bill impacts RY24 based on our draft proposal (subject to change following consultation)

Indicative increase in residential electricity bill for the average residential consumer[76]	Dunedin	Central Otago and Wanaka	Queenstown
Aurora's original proposal	$20.30	$30.90	$24.10
Based on Aurora's proposal (restated to include GST and inflation)	$32.70	$47.30	$39.80
Based on our draft decision	$22.20	$31.50	$22.70
Estimated reduction in price increase due to our scrutiny	$10.50	$15.80	$17.10

4.39 If as a result of our consideration of points made in submissions on this draft decision, final capex and opex expenditure allowances increase the estimated prices shown above would also increase.

4.40 Our draft decision imposes a cap on the increase in Aurora's revenue over time. The cap is intended to limit the increase in Aurora's revenue in each of years two to five of its CPP period so that it doesn't exceed its revenue in the proceeding year by more than 10%. The cap is intended to reduce the price shock faced by Aurora customers.

4.41 An alternative approach that we considered is permitting an immediate increase in maximum allowable revenues of 5% in the first year, with increases of 10% for each of the next four years. This alternative approach reflects that what consumers might consider to be a price shock may be different currently, due to the impact of Covid-19, to what it might have been under more normal economic conditions. This would, however, result in $38.5 million needing to be recovered after 2026 and would likely keep lines charges higher for longer. Consumers would end up paying an extra $9.6 million over time under this scenario, when accounting for inflation and interest costs

4.42 We invite submissions from stakeholders on which of the two approaches described in the two proceeding paragraphs above is preferable.

[76] These increases are for a three-year period, as per Aurora's CPP application.

Service quality and reliability

4.43 In its proposal, Aurora acknowledged the poor state of its network, citing the 2018 independent WSP report, which found many reliability and safety concerns. Aurora outlined that the need to address deteriorating safety and reliability were the underlying reasons for the extra expenditure it needed under a CPP.[77]

4.44 Aurora also noted that the great majority of customers it had consulted with on reliability matters indicated satisfaction with the current levels of reliability, and did not want to pay more for improvements. Accordingly, it had focussed its CPP expenditure on improving network safety and maintaining, not improving, its reliability.

4.45 Aurora applied to relax the regulatory quality standards that it would be subject to. Aurora considered that the relaxed quality standards that reflect worse performance than its recent 2016-2020 performance would better reflect what is realistically achievable on its network.[78]

4.46 In its submission, Aurora reaffirmed many of the same points on quality that it had made in its proposal. It noted that its CPP period commenced at a time of deteriorating asset performance and that reversing this trend could be expected to take some years.[79]

4.47 Many stakeholders expressed concerns about the reliability and quality of Aurora's lines services. [80] [81] Reliability was considered particularly vital in one of the coldest regions of the country, where heat pumps are the only source of heating for many people due to tightening air-quality regulations.

4.48 Some business owners noted they had been badly affected by voltage issues and lengthy power outages, both planned and unplanned, and criticised Aurora's communication (or lack of) when these issues arose. [82]

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77 Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), p.5.

78 Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), p.6.

79 Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), p.13.

80 NZ Chamber of Commerce Queenstown "Submission on Aurora Energy's CPP Issues paper" (27 August 2020).

81 "Summary of Cromwell stakeholder meeting on Aurora's CPP" (11 August 2020).

82 "Summary of Cromwell stakeholder meeting on Aurora's CPP" (11 August 2020).

4.49 We heard that, on occasion, commercial customers had been warned of a planned outage and organised themselves accordingly, only for the work not to proceed. [83] We also heard from stakeholders that in other instances, contractors had arrived on a job only to find residents had not been informed the power would need to be turned off while they worked.

4.50 There was some concern raised that Aurora's CPP was focussed on only improving the safety of its network. Some stakeholders questioned whether this would flow-on to improve the reliability of the network, or instead would require a second round of investment at customers' expense. [84]

4.51 Aurora's request to relax the reliability standards it must meet while repairing its network was similarly opposed by some stakeholders as they feared it would 'lock in' poor performance and provide a disincentive to improve network reliability.

4.52 Stakeholders also questioned the purpose and value of Aurora's voluntary customer compensation scheme, whereby it pays $50 to customers affected by a long-duration power cut. [85] There was limited awareness of the scheme and a general concern about how difficult it was to access and whether it provided any real incentive for Aurora to improve its performance.

Implications of our draft decision

4.53 Aurora had a poor performance record over the past decade, breaching its quality standards multiple times, which ultimately led to us taking it to court where it was fined $5 million.

4.54 Its customers generally accept that it is appropriate for Aurora to prioritise safety expenditure. However, they are concerned that this CPP may impose significant costs but do little to improve the reliability of its electricity supply.

4.55 We broadly consider that there is a link between safety and reliability improvements and therefore we expect to see some benefits flow through to the reliability and quality of Aurora's services under this CPP. For example, replacing older power poles and lines will improve both safety and reduce the risk of outages caused by the failure, or essential maintenance, of that equipment.

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[83] For example: NZ Chamber of Commerce Queenstown "Submission on Aurora Energy's CPP Issues paper" (27 August 2020).

[84] Richard Healey "Submission on Aurora Energy's CPP Issues paper" (27 August 2020).

[85] 0481 "Submission on Aurora Energy's CPP Issues paper" (18 August 2020).

4.56 We accept that many consumers have said they are not willing to pay more for improved reliability. However, this does not tell us much about whether consumers support Aurora's proposed reliability outcomes, given it is proposing worse reliability at a higher cost. Aurora's reliability forecasts build in a 19% SAIDI and 10% SAIFI deterioration over the CPP period relative to the 2016-2020 period. We do not consider that this level of further deterioration is acceptable, especially given the level of expenditure we are approving. In our view, Aurora's plans to fund major network investment should enable it to perform better than it has proposed.

4.57 Our draft decision is to set more stringent unplanned outage targets and standards than Aurora proposed which reflects this view. This position takes account of Aurora's historical performance, its investment plans, consumer feedback, and our view that some of Aurora's data, analysis, and assumptions underpinning its proposal are not sufficiently robust. We expand on our specific reasons for adopting targets and limits at the levels we have proposed in Attachment C.

4.58 We propose requiring Aurora to publicly disclose information on its customer compensation scheme. This includes information on the scheme that is in place as well as how many payments are made. We consider that increased transparency will support the scheme and its potential improvement.

Capital expenditure

4.59 Aurora’s forecast was to spend $356.3 million (real $2020) over five years. Aurora outlined that most of its capex was catch-up renewal expenditure that was needed because its historical capex was low. They went on to explain in their proposal that they had moderated their CPP capex forecasts through a robust challenge and review process including customer feedback, independent verification and updates to take into account potential Covid-19 impacts.[86]

4.60 Many stakeholders recognised and accepted that a significant amount of capital expenditure was needed to improve the safety and maintain (at least) the reliability of Aurora's network.

4.61 Some stakeholders also raised issues about the investment designated for specific work programmes, including the Halfway Bush and Clyde to Earnscleugh line upgrades and the pole renewal programme. [87] [88]

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[86] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), p.17

[87] Item 41 1-50 "Submission on Aurora Energy's CPP Issues paper" (27 August 2020).

[88] 0479 "Submission on Aurora Energy's CPP Issues paper" (19 August 2020).

4.62 Some stakeholders also wanted to be assured that Aurora was taking into account the effect of emerging technologies, such as solar panels and electric vehicles, when planning or making decisions on capital expenditure.

4.63 There were some stakeholders that appeared to assume that their line charges represent direct capital investment.[89] Aurora noted this in its cross submission and requested we provide some clarity around the funding of capital expenditure. Capital expenditure is recovered through a return on that spend, and a return of that spend (through depreciation allowances), over the lifetime of the assets used by Aurora to provide electricity line services.

Implications of our draft decision

4.64 Following our assessment of the proposed capex in Aurora's CPP proposal we largely agree with the amount Aurora has proposed for capital expenditure and its approach to completing this work. For a five-year CPP period, our draft decision allows slightly less than it requested, at $315.5 million compared to $356.3 million (real $2020) over five years. The difference is mainly due to proposed reductions in growth and security capex due to the uncertainty posed by Covid-19 (but which may be allowed in the future) and the five percent efficiency adjustment applied to some expenditure programmes.

4.65 We do not consider that the CPP will foreclose or undermine new technologies and businesses gaining a footing on Aurora's network. Our draft decision on Aurora's CPP provides an annual envelope of revenue for Aurora for each of the 5 years. Because there are incentives for efficiency, Aurora has an incentive to look for less expensive ways of meeting quality standards, which might be through substitution of capex for opex or vice versa, or a substitution of more traditional network solutions with alternatives (including emerging technologies).

4.66 We also note that we have allowed expenditure on future networks capex which will cover Aurora investigating the impact of electric vehicles and solar panels on its network. Further, we have allowed expenditure on a significant distributed energy resources initiative to defer network capex.

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[89] For example: Cromwell Electrical Trust Action Group "Submission on Aurora Energy's CPP Issues paper" (20 August 2020).

4.67 The Commission considers that its draft decision is consistent with section 54Q of the Act which requires that the Commission must promote incentives, and must avoid imposing disincentives, for suppliers of electricity lines services to invest in energy efficiency and demand side management, and to reduce energy losses. In particular, we point to the aligned capex and opex incentives rates in the IRIS mechanism which means that traditional network investments (ie poles and wires) which are capex are not encouraged more than alternative opex investments, which could provide a similar network service such as demand management. Likewise, our draft decision for Aurora's CPP is for a revenue cap (as opposed to price cap) which removes disincentives for Aurora to encourage energy efficiency.

4.68 A key area of focus for us has been to ensure Aurora delivers this work efficiently and on time. In this regard we have proposed a number of initiatives that are outlined below under governance, accountability and delivery.

Operational expenditure

4.69 Aurora forecast to spend $252.9 million (real $2020) over a 5-year CPP period on opex. Aurora noted that its proposed increase in opex was to address a number of matters including defect backlogs and improve its inspection and condition regimes, improve its asset management and develop some non-network alternatives.[90]

4.70 Aurora went on to explain in its proposal that it had moderated its CPP opex forecasts through a robust challenge and review process including customer feedback and independent verification and updates to take into account potential Covid-19 impacts.[91]

4.71 In its submission Aurora reaffirmed that the independent verifier had closely scrutinised the great majority of its proposed opex expenditure. Aurora indicated that the Commission should rely on the verifier's guidance to ensure the credibility of the verification process.[92]

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90 Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), p. 19

91 Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), p.20.

92 Aurora Energy "Submission on Aurora Energy's Issues paper" (20 August 2020), p.4.

4.72 Many stakeholders also accepted Aurora would need to increase its operational expenditure, especially to catch-up on maintenance needs.[93, 94] However, they questioned whether all of Aurora's proposed spending was prudent, citing concerns with how much it pays its staff and contractors, the contract it has with its related entity Delta Utility Services, and vegetation management costs. [95] [96]

Implications of our draft decision

4.73 Following our assessment of Aurora's proposed opex, our draft decision is that some of the spend proposed by Aurora is inefficient. This is particularly in relation to the proposed spend on costs and people and vegetation management. In total our draft decision provides for a substantial reduction in the opex from $252.9 million requested to $207.7 million (real $2020) over five years.

4.74 In our Attachment E, we discuss our concerns with the level of vegetation management costs. These services are currently solely provided through a contract with Delta, which is a related party. We have proposed reductions in the allowance for such costs to a more efficient level.

4.75 We also reviewed Aurora's proposed expenditure for staffing and remuneration levels for the SONS and people programmes. Our analysis resulted in us proposing a significant reduction to these expenditure programmes.

4.76 We do however consider that the number of proposed fulltime equivalent (FTE) staff is too high and we have proposed opex reductions to reflect what we consider a more appropriate number of FTEs.

The effectiveness of Aurora's consultation in developing its CPP

4.77 In developing its investment plan, Aurora undertook its own community consultation. This included a series of public meetings, consumer surveys and the publication of a consultation document that its customers could provide written submissions on. It also established a CAP to provide an independent consumer voice to help inform its plan.[97]

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93 Alan Harper "Submission on Aurora Energy's CPP Issues paper" (3 August 2020).

94 Infrastructure NZ "Submission on Aurora Energy's CPP Issues paper" (19 August 2020).

95 NZ Chamber of Commerce Queenstown "Submission on Aurora Energy's CPP Issues paper" (27 August 2020).

96 Item 28 1-50 "Submission on Aurora Energy's CPP Issues paper" (27 August 2020).

97 Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), p.10-11.

4.78 Many stakeholders had views on the effectiveness of Aurora's consultation in the development of its CPP proposal.[98,99,100] Most expressed concern with the consultation process Aurora had run. There were a range of concerns expressed including that Aurora had handpicked its CAP members; and that not many stakeholders had participated in some of its consultation initiatives.

4.79 There were some submissions on the Issues Paper package that complimented Aurora on its consultation process and considered it thorough.[101,102]

4.80 In its cross submission Aurora responded to submitters' concerns with its consultation. Aurora put forward its view that it had "lifted the bar" relative to previous CPP consultations, that its consultation was designed to meet the legislative requirements and that the verifier thought that many aspects of Aurora's consultation were best practice.

We have engaged with consumers further to Aurora's engagement

4.81 The extent to which Aurora consulted with consumers on its CPP proposal and the proposal is supported by consumers, where relevant, is a specific evaluation criterion.

4.82 We consider that aspects of Aurora's consultation were very good including its establishment of a consumer advisory panel, the variety of communications channels it used and its consumer surveys. However, attendance at its drop-in sessions was low.

4.83 We also consider that some of the information Aurora provided to consumers during its consultation was inadequate. In particular, the stated price impacts of Aurora's CPP proposal were difficult to understand and not necessarily representative of the actual price impacts that were likely to result. As well, in consultation material, Aurora indicated that quality performance would improve rather than stabilise or decline (as was indicated in its proposal).

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98 Richard Healey "Submission on Aurora Energy's CPP Issues paper" (27 August 2020).

99 Central Otago District Mayor and Councillors "Submission on Aurora Energy's Issues paper" (20 August 2020).

100 0553 "Submission on Aurora Energy's CPP Issues paper" (18 July 2020).

101 Mercury "Submission on Aurora Energy's CPP Issues paper" (20 August 2020).

102 Wellington Electricity "Submission on Aurora Energy's Issues paper" (20 August 2020).

The length of the CPP

4.84 Aurora sought a three-year CPP period because it considered this would better meet the purposes of the Act. The basis of its reasoning was that there was greater than normal uncertainty in forecasting of expenditure and the resulting reliability impacts for years four and five of a normal five-year CPP period.[103]

4.85 There were mixed views on the appropriate term of the CPP. Some stakeholders wanted a shorter period for the reasons Aurora provided, and other reasons such as accountability. Others wanted a longer five-year period because they wanted to see continuity of Aurora's renewal programme and a sense of greater predictability of outcomes from that longer period. [104,105,106]

4.86 It was notable that a number of stakeholders appeared to mistakenly believe that if a shorter period is applied, then the price impact would be for a shorter duration and the necessary work by Aurora would be completed in a shorter time period.

Implications of our draft decision:

4.87 Our draft decision is that a shorter three-year CPP period does not better meet the Part 4 objective, primarily because of the increased length of certainty a five-year CPP provides. We also note that the renewals programmes, which represents the majority of Aurora's capex are less affected by forecasting uncertainty in year four and year five than the growth programmes. We propose to cater for uncertainty in the growth programmes by allowing for a price path reopener if growth is greater than currently anticipated.

Issues that can be addressed with other tools we have

4.88 Several concerns were raised about Aurora's performance (past, present and future) that are within our areas of responsibility but cannot be or are not best addressed within the CPP process. They can however be addressed, in some part, by different tools we have at our disposal. There are three issues that we will discuss in turn below:

4.88.1 Governance;

4.88.2 accountability and delivery; and

4.88.3 asset management practices and our past monitoring of Aurora.

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[103] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), p.1.

[104] Item 48 1-50 "Submission on Aurora Energy's CPP Issues paper" (27 August 2020).

[105] Item 2 1-50 "Submission on Aurora Energy's CPP Issues paper" (27 August 2020).

[106] Item 8 1-50 "Submission on Aurora Energy's CPP Issues paper" (27 August 2020).

Governance, accountability and delivery

4.89 Aurora outlined in its proposal that it had undergone a significant restructure and a fundamental shift in its asset management approach.[107] It detailed a number of actions that had been taken in this regard including establishing a new Board, executive and the team to operate as a standalone business.

4.90 Aurora also outlined in its proposal in a section on deliverability, that it had significantly enhanced its capacity to deliver an increased work programme by implementing a major reform of its contracting model. It went onto say that it was confident that the CPP can be delivered efficiently.

4.91 In its submission, Aurora reaffirmed its view that it could efficiently deliver its CPP, noting that the verifier thought that that work proposed in the capex and opex forecasts appeared deliverable. [108, 109,110,111]

4.92 One of the major themes raised in submissions on the Issues Paper package and at the stakeholder engagement sessions was the lack of trust in Aurora's ability to deliver its CPP and that it needed to be held accountable for delivering it. This loss of trust appeared to be the result of Aurora's past poor performance and its perceived lack of engagement and ineffective communication with its customers over many years. [112],

4.93 This sentiment was particularly strong in Central Otago, where many customers said they distrusted Aurora's Board and believed that it lacked representation independent of Dunedin City Council.

4.94 Despite recent changes to Aurora's Board and senior management, many stakeholders have little confidence that Aurora can deliver what it says it will, report accurately on its work programme or listen to community concerns in a meaningful way. Because of these views, stakeholders recommended that independent oversight should be put in place to monitor and report on Aurora's progress. Suggestions put forward included:

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[107] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), p.3.

[108] Item 4 1-50 "Submission on Aurora Energy's CPP Issues paper" (27 August 2020).

[109] Item 14 1-50 "Submission on Aurora Energy's CPP Issues paper" (27 August 2020).

[110] Summary of Dunedin stakeholder meeting on Aurora's CPP 6 August 2020.

[111] Item 50 1-50 "Submission on Aurora Energy's CPP Issues paper" (27 August 2020).

[112] Item 4 1-50 "Submission on Aurora Energy's CPP Issues paper" (27 August 2020).

4.94.1 appointing an independent verifier to assess and report on Aurora's delivery; [113]

4.94.2 enabling communities to hold Aurora to account through mandatory reporting requirements and/or public meetings;

4.94.3 continuing with the Customer Advisory Panel but in an oversight role; and

4.94.4 linking Aurora's revenue to its delivery

4.95 Some submitters had a contrary view to concerns with Aurora's ability to deliver. They noted the organisational changes, the focus Aurora had put on delivery in developing its proposal and the verifier's findings that Aurora's programme for work appeared deliverable.

What we are proposing

4.96 We recognise that the organisational changes that Aurora has made, and its ongoing development of its asset management capabilities put it in a good position to deliver its CPP. We thoroughly tested the efficiency of its proposed capex and opex and considered whether it could efficiently deliver programmes of work in these expenditure areas.

4.97 We saw first-hand when we visited Aurora's region to receive feedback on our Issues Paper package that many customers have little trust or confidence in Aurora's work. A key challenge for Aurora will be improving the confidence and trust of its customers in its work.

4.98 To hold Aurora accountable to its customers for the deliverability of its CPP we are committed to implementing a number of accountability measures. The measures we propose include:

4.98.1 requiring Aurora to report on ongoing improvements in its data quality processes;

4.98.2 requiring Aurora to report on cost efficiencies;

4.98.3 requiring Aurora to report on its progress on improving its asset health and on improving the safety and reliability of its network in an Annual Delivery Report (ADR); and

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[113] Central Otago District Mayor and Councillors "Submission on Aurora Energy's Issues paper" (20 August 2020).

4.98.4 requiring Aurora to obtain and report on a mid-period expert opinion on its progress on some areas of the ADR.

Asset management practices

4.99 A report by Strata in 2013 found that Aurora's asset management practices were a major contributing factor to Aurora breaching its quality standards for the 2012 assessment period. Aurora acknowledged in the December 2019 agreed summary of facts that accompanied the High Court's decision on Aurora's later quality breaches, that it had failed to act in accordance with good industry practice in not having a planned response to the findings of Strata's earlier findings on its asset management practices.

4.100 Aurora indicated in its proposal that it has shifted its asset management approach towards good industry practice. A key focus for Aurora is making ongoing improvements in asset management practices so that it can achieve the internationally recognised ISO 55000 asset management standard by 2023.[114]

4.101 A number of stakeholders identified Aurora's poor asset management practices as one of the major reasons for its current predicament. [115]

4.102 Some stakeholders suggested that we should undertake further work to more aggressively scrutinise lines companies' actual asset management practices to ensure that they were discharging their practices effectively. [116]

Our response

4.103 We agree with stakeholders that many of the safety and reliability issues with Aurora's network are due to shortcomings in its asset management practices over many years.

4.104 We are required to set Aurora's CPP on a forward-looking basis, and the CPP mechanism does not provide for retrospective action. We can, however, put measures in place that look to mitigate the risk of past failings being repeated. That said, as noted below, we can (and have) addressed Aurora's previous reliability issues through court proceedings.

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[114] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), p.33.

[115] 0491 "Submission on Aurora Energy's CPP Issues paper" (20 August 2020).

[116] Item 22 1-50 "Submission on Aurora Energy's CPP Issues paper" (27 August 2020).

4.105 However, we consider that the measures we have put in place in the CPP will lead to improved asset management practices going forward (ie increased spend on inhouse asset management specialists and replacement of old assets).

4.106 In addition, we had earlier initiated a programme of work to improve all lines companies' asset management practices in New Zealand.

4.106.1 In 2017 we wrote an open letter to lines companies that asset management would be a priority focus area for us. We followed that up with site visits to better understand individual lines companies' asset management practices.

4.106.2 We published our review of lines companies' asset management plans in 2018. In 2019 we released our review of lines companies asset management practices related to risk preparedness, which looked at contingency and major events planning, and their investment associated with network resilience. Later this year we plan to release our next review of aspects of electricity lines companies' asset management practices, which will focus on the transparency of lines companies' reporting, especially the reporting in their asset management plans.

4.106.3 Where companies breach quality paths we can investigate and take enforcement action, including particularly where poor asset management practices have led to the breaches. We will continue to take action against quality standard breaches and poor asset management practices, in this way.

4.107 Sound asset management by electricity lines companies is integral to delivering services at a price and quality that reflects the demands of electricity customers. We will continue to maintain a strong focus on these practices especially improving the disclosure of asset management practices.

Our past monitoring of Aurora

4.108 Several stakeholders expressed the view that we had not effectively monitored Aurora's past performance and should have done more to prevent the deterioration in its service levels. This perceived lack of action on our part raised concerns in some stakeholders' minds that we will not effectively monitor or hold Aurora to account for delivering its CPP effectively.[117,118]

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[117] 0543 "Submission on Aurora Energy's CPP Issues paper" (18 June 2020).

[118] 0509 "Submission on Aurora energy's CPP Issues paper" (20 August 2020).

Our response

4.109 In March 2020, our proceedings against Aurora for breaching our network quality standards, regarding the duration and frequency of power cuts in the 2016-2019 years, concluded in the High Court. This action followed the warning we issued Aurora in 2014 for breaches in 2012 and 2013.

4.110 Fundamentally Aurora's senior management and Board are responsible for managing Aurora and ensuring that its network delivers safe and reliable services. Aurora was regulated under the low-cost DPP regime, which is premised on applicants, in this case Aurora, taking the initiative and applying for a CPP which provides for expenditure and quality outcomes that better meets the particular needs of the electricity lines company.

4.111 Our role in this CPP proposal is now forward-looking and focussed on doing what is right for the network now for the long-term benefit of consumers. We understand that some stakeholders remain concerned about our ability to monitor Aurora. We consider we have the necessary tools to hold Aurora publicly accountable on its delivery and have built accountability mechanisms (highlighted above) into the CPP that should help address stakeholders' concerns.

Issues outside our statutory mandate

4.112 A number of issues were raised that, although important and relevant to Aurora's business activities, sit outside our statutory mandate. In this section we discuss five of these issues namely:

4.112.1 Aurora's pricing methodology;

4.112.2 price increases for distributed generation;

4.112.3 ownership contribution to network rebuild;

4.112.4 electricity market structure; and

4.112.5 health and safety practices.

4.113 In Table 4.2 we state for each of these issues the entity that is responsible for considering that matter.

Table 4.2 Entity responsible for issues raised that are outside our responsibilities

Issue	Responsible
Aurora's pricing methodology	Electricity Authority
Price increase for distributed generation	Electricity Authority
Ownership contribution to network rebuild	Dunedin City Holdings and Dunedin City Council
Electricity market structure	The Government (via MBIE)
Health and safety practices	Worksafe

Aurora's regional pricing

4.114 As mentioned above, Aurora divides its network into three regions for the purposes of charging its customers: Dunedin, Central Otago and Queenstown Lakes. Aurora plans to review its pricing methodology which sets its regional pricing in 2023.[119] As part of this process Aurora plans to consult with its customers.

4.115 We heard several concerns with aspects of this regional pricing, notably:

4.115.1 Customers in Central Otago and Queenstown believe they are paying too much and subsidising Dunedin customers. They are concerned this will get worse with the uplift in expenditure from Aurora's CPP. [120,121]

4.115.2 Pricing is not service-based in the sense that customers in some areas pay more (ie Central Otago) even though their reliability is less than other regions.

4.115.3 Prices are being driven down by competition in the Queenstown pricing region, which has led Aurora to under-price for commercial customers in this area with the 'difference' being covered by customers in other regions.

[119] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), p. 29 - 30.

[120] Item 31 1-50 "Submission on Aurora Energy's CPP Issues paper" (27 August 2020).

[121] Item 31 1-50 "Submission on Aurora Energy's CPP Issues paper" (27 August 2020).

Our response

4.116 Under the Part 4 legislative regime we do not set the prices for individual consumers or for the pricing regions on Aurora's network. Setting all those prices is a matter for the company to determine through the application of its pricing methodology. The Electricity Authority sets distribution pricing principles, publishes guidance material and assesses distributors' pricing methodologies against those principles. We note that Aurora's pricing methodology seeks to reflect differences in its cost of supplying electricity to the various consumers and parts of its network. It is common for electricity consumers in areas with lower density to have a higher cost to serve, and higher prices.

4.117 We are, however, responsible for administering the information disclosure regime governing lines companies, including Aurora. This regime requires lines companies to regularly release information on financial, pricing, quality and asset management measures.

4.118 We are proposing that Aurora disclose more information in a more transparent manner so that its customers better understand its pricing approach. This would include its regional cost allocation, which flows through to the regional prices it charges.

Price increases for distributed generation

4.119 Aurora has a number of electricity generators that are connected directly to its network. These are called embedded or distributed generators (DG). DG owners submitted that the prices they pay to use Aurora's network (ie inject electricity) would increase under its proposed CPP. [122]

Our response

4.120 We do not have a role in setting the charges that a DG pays to use its local lines network.

4.121 Part 6 of the Electricity Industry Participation Code (Code) sets the regulatory arrangements for DG, including the pricing principles that apply. The Electricity Authority administers this Code and is therefore responsible for determining if the charges fall within the allowable "no more than incremental cost" range prescribed in the Code. Accordingly, we are having ongoing dialogue with the Electricity Authority on this matter.

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[122] Southern Generation Limited Partnership "Submission on Aurora Energy's CPP Issues paper" (20 August 2020).

4.122 Several stakeholders suggested the view that Aurora's owners should bear most of or all the cost of fixing Aurora's network. Some stakeholders further argued that as Dunedin customers owned the network, via Dunedin City Council, they should pay. [123,124,125,126]

Our response

4.123 Our statutory mandate limits our powers to setting an incentives based revenue path and associated quality standards. We do not have the power or ability to decide who owns a lines company or direct the owners on how to manage their business. These matters are ultimately for the owners, in this case Dunedin City Holdings and Dunedin City Council, to respond to.

The structure of the electricity market does not benefit Aurora's customers

4.124 We heard concerns about the current structure of the electricity market with some wanting to see it changed. They pointed to the increase in electricity prices since the market was reformed in the 1990s and the lack of accountability that they perceive exists between suppliers and customers. They attributed, to a greater or lesser extent, the problems that had beset Aurora to these past reforms of the electricity market. [127,128]

Our response

4.125 The structure of the electricity market is an issue for central Government to consider. We are engaging with the Ministry of Business, Innovation and Employment (MBIE), the government department responsible for advising the Minister of Energy on electricity market issues, to inform it of consumers concerns about this issue.

Health and Safety

4.126 Some stakeholders were concerned with Aurora's health and safety practices and highlighted specific incidents where they considered there had been serious breaches of safety standards.

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123 Item 14 1-50 "Submission on Aurora Energy's CPP Issues paper" (27 August 2020).

124 Item 34 1-50 "Submission on Aurora Energy's CPP Issues paper" (27 August 2020).

125 Item 16 1-50 "Submission on Aurora Energy's CPP Issues paper" (27 August 2020).

126 0445 "Submission on Aurora Energy's CPP Issues paper" (5 August 2020).

127 Item 46 1-50 "Submission on Aurora Energy's CPP Issues paper" (27 August 2020).

128 0429 "Submission on Aurora Energy's CPP Issues paper" (25 July 2020).

Our response

4.127 Worksafe NZ is responsible for setting health and safety standards in the electricity sector and investigating any potential breaches or serious incidents. Where individuals brought specific concerns to our attention, we advised them to contact Worksafe directly and followed up with Worksafe to ensure it had been made aware.

Chapter 5 Accountability and monitoring

Purpose of this chapter

5.1 This chapter summarises the measures that we are proposing to address, the key risks inherent in Aurora's CPP, and to encourage Aurora to achieve better performance over time.

5.2 The structure of this chapter is as follows:

5.2.1 identify the measures we propose to improve accountability and monitoring of Aurora;

5.2.2 summarise of the relevant steps that Aurora has already taken, or has proposed to improve its ability to deliver, and our assessment of those steps;

5.2.3 state our view of the key risks and issues in Aurora's CPP and the implications of these materialising;

5.2.4 for each of the measures proposed to address a risk or issues, we outline our reasons for the measure and where further discussion of these measures can be found in this paper; and

5.2.5 provide our reasons on why certain measures were considered and excluded from this draft decision.

Summary of the proposed measures

5.3 Each of the measures we are proposing addresses one or some of these objectives:

5.3.1 addresses key risks or issues inherent in Aurora's CPP

5.3.2 assists stakeholders to judge whether Aurora is delivering as promised within the term of the CPP

5.3.3 encourages Aurora to achieve better performance over time and allows stakeholders to assess this through the provision and publication of information.

5.4 Table 5.1 outlines the implementation of these measures ie whether it sits as part of our CPP draft decision or separate information disclosure regulation.

Table 5.1 Implementation of measures

CPP Draft Decisions	Information Disclosure Draft Policy Decisions
Prudent and efficient expenditure assessment	Produce an Annual Delivery Report (ADR) and be required to present it to consumers in Aurora's three regions
Reconsideration mechanism for Aurora to propose new and uncertain work	Disclose information to consumers annually on the quality of services, regional pricing and improvements in asset management, project quality assurance, data collection and quality and cost estimation processes
	Report on mid-period (in Year 3) on expert opinions it obtains regarding Aurora's progress in some more complex areas of its business to provide us and stakeholders with additional assurance that Aurora is delivering benefit to consumers over time.
	Report on consumer engagement process on its charter

Aurora has taken steps to improve its ability to deliver

5.5 We acknowledge that Aurora has already taken a number of steps to improve its ability to deliver against its plan. These are detailed in its CPP proposal and the Verifier's report.[129,130] Some of these include the following:

5.5.1 Aurora has carried out its own risk assessment of its ability to deliver its work programme. The risks it has identified include resource availability, access to specialist technical services and procurement. Aurora has mitigation measures already underway to address these risks.

5.5.2 It has reviewed its contracting approach and set up agreements with two additional providers, Unison and Connetics. It can also draw labour resources from other approved contractors for tendered and other work. Aurora's field service agreements include elements to improve service delivery and efficiency over time. Further information on our assessment of its contracting approach, and our views on some issues with the arrangements with its related party Delta, are contained in Attachment D.

[129] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020).

[130] Farrier Swier Consulting Pty Ltd and GHD Pty Ltd "Verification report - Aurora Energy CPP application" (8 June 2020).

5.5.3 Aurora has focused on ensuring that internally it is well set up with the appropriate roles required to manage delivery of the work programme via its new contracting model. It also set up a Planning and Work Delivery design team for a 12-month period which is focused on creating and implementing the right processes to support project delivery. It has invested in Sentient, a project and programme management software tool to enable tracking of projects and programmes.

5.6 Aurora's delivery capability was tested by the Verifier, which concluded that Aurora's approach to deliverability appears well considered, that discussions with service providers are well advanced with resources largely secured, and that it had the ability to source any additional resources required. Although there are delivery risks, it expected that Aurora can, and will, manage them.

5.7 The Verifier suggested we consider discussing with Aurora some performance measures it could meaningfully use, and the reporting we would like to see on project costs, risks and deliverables associated with individual programmes and projects utilising the Sentient tool.[131]

5.8 We questioned the Verifier on its assessment approach and conclusions in the Verifier debrief workshop. We requested further information from Aurora to better understand how it will manage quality assurance of delivered work through the delivery processes it had set up, and we sought to understand what level of reporting it was already doing to assist with our thinking on the monitoring requirements.

5.9 We agree with the Verifier's findings on Aurora's ability to deliver, provided there are also appropriate mechanisms in place to hold Aurora accountable for delivering against its plan and improving performance in the longer term. We detail these further in this chapter.

Key issues and risks

5.10 We have explained in Chapters 1 and 4 the key issues and risks of Aurora's CPP proposal, challenges associated with it delivering on its plan, and improving transparency and performance longer-term.

[131] Farrier Swier Consulting Pty Ltd and GHD Pty Ltd "Verification report - Aurora Energy CPP application" (8 June 2020), Section 7 “Matters for the Commission to consider”

5.11 Table 5.1:

5.11.1.1 summarises our view of the key issues and risks;

5.11.1.2 describes the implications of the risks materialising;

5.11.1.3 discusses the measures we propose to implement or are considering, which includes categorising the implementation of these measures under four groups (CPP decision, a separate additional information disclosure requirement, using our influence, and liaison with other agencies); and

5.11.1.4 provides details of where in this paper further discussion on each measure can be found.

Table 5.2 Key issues, risks and measures

Key risk/issue	Implication	How addressed in draft decision	Category of mechanism - CPP, Information Disclosure (ID), using our influence, or liaison with other agencies	Location of further detailed discussion in this paper
Aurora may have proposed work that could turn out to be unnecessary or can be delayed	Consumers pay too much because prices reflect work that is not needed or not needed yet	We undertook a thorough review of Aurora's proposed work	CPP evaluation	Attachment D (Capex), Attachment E (Opex)
Aurora may not have identified all the work that its network needs and may need some flexibility to include newly-identified or uncertain work	Necessary work on the network is not carried out when it is needed. The quality of service to consumers may suffer as a result	Aurora may be able to reprioritise its work. We also propose two reconsideration mechanisms that will allow for Aurora to propose new and uncertain work	CPP implementation	Attachment J (IM variations)
		Requiring Aurora to report on ongoing improvements in its data quality processes	ID	Attachment I (Information Disclosures)
Aurora may have overestimated the costs for the required work, resulting in us allowing higher than necessary revenue increases. Aurora might carry out its work inefficiently	Consumers pay too much	We reviewed Aurora's costs for the proposed work	CPP evaluation	Attachment D (Capex), Attachment E (Opex
		Requiring Aurora to report on cost efficiencies	ID	Attachment I (Information Disclosures)
Aurora might not deliver all of the planned work it has proposed	Consumers pay too much and necessary work on the network is not carried out when required	Requiring Aurora to produce an Annual Delivery Report	ID	This chapter and Attachment I (Information Disclosures)
		Requiring Aurora to present its ADR to its consumers in the regions	ID	This chapter and Attachment I (Information Disclosures)

Key risk/issue	Implication	How addressed in draft decision	Category of mechanism - CPP, Information Disclosure (ID), using our influence, or liaison with other agencies	Location of further detailed discussion in this paper
		We will perform our own analysis on any ADR to help consumers assess Aurora's progress	ID	This chapter
		Requiring Aurora to report on any mid-period expert opinions on its progress on some areas of the ADR	ID	Attachment I (Information Disclosures)
		We will continue our engagement with WorkSafe NZ	Liaison with other agencies	This chapter
Aurora is not as transparent with providing information or as responsive with its consumers as it should be	Consumers cannot assess Aurora's performance effectively and communicate their requirements to Aurora. Consumers trust and confidence in Aurora is eroded	Requiring Aurora to engage with its consumers on its charter	ID	Attachment I (Information Disclosures)
		Requiring Aurora to provide information on quality of services	ID	Attachment I (Information Disclosures)
Consumers might not understand the full impact of Aurora's planned works programme on the prices they will pay	Consumers' comments on the proposal and draft decision is not informed by an accurate understanding of the price impact. Consumers make poorly informed decision on how they can change their use of electricity given the size of price increases	We undertook our own modelling of the residential price impact of our CPP revenue settings	CPP evaluation	Attachment H (Price impact)
		Requiring Aurora to disclose information on regional pricing to make it easier for consumers to understand its pricing methodology	ID	Attachment I (Information Disclosures)

Key risk/issue	Implication	How addressed in draft decision	Category of mechanism - CPP, Information Disclosure (ID), using our influence, or liaison with other agencies	Location of further detailed discussion in this paper
		We will engage with MBIE and the EA on consumer concerns	Liaison with other agencies	Chapter 3

5.12 The rest of this chapter discusses each of these areas in turn and describes in further detail the measures we propose to implement to ensure the key issues and risks are managed so that:

5.12.1 Aurora completes necessary work on its network and may apply for approval of expenditure for additional work if it is required;

5.12.2 Aurora's spend on the required work is right-sized, it is incentivised to complete its work efficiently and continues to work on cost efficiencies;

5.12.3 Aurora delivers on the planned work it has committed to;

5.12.4 Aurora improves transparency and responsiveness towards consumers; and

5.12.5 Aurora enables its consumers to better understand the impact of this CPP on their prices.

5.13 We also identify other measures which we considered but do not currently propose to implement, or are not considering. The purpose of regulation under Part 4 is to promote the long-term benefit of consumers, and as such we have been mindful of realising long term benefits when proposing measures. This means we have not merely looked to steps that will benefit consumers during the course of the CPP, but we have considered steps that we expect to benefit consumers in the longer term. [132]

Aurora completes necessary work on its network and may apply for approval of expenditure for additional work if it is required

We undertook a thorough review of Aurora's proposed work in its CPP application

5.14 As part of our expenditure assessment as set out in Attachments D and E, we scrutinised Aurora's proposed work plan to determine that the work was necessary, well-justified and aligned with the key drivers of the CPP. Work which was identified as not being necessary but did not meet the expenditure objective ($22.2 million capex and $45.3 million opex real $2020); work for which the need was not yet clear but that it would meet the expenditure objective ($18.7 million capex real $2020). Expenditure was also excluded where Aurora could seek approval in the future, and this is discussed below.

[132] Commerce Act 1986 s 52A(1)(d) are limited in their ability to extract excessive profits.

We propose two reconsideration mechanisms to apply for work not provided for in our CPP draft decision

5.15 Aurora has highlighted uncertainty over the level of spend required in the medium term, including in RY25 and RY26.[133] We agree there is always uncertainty over medium term expenditure needs, but there is less uncertainty than Aurora contends. To give Aurora more flexibility to adjust to changes during the CPP period, we propose two new reconsideration mechanisms. These allow Aurora to apply to us for approval of expenditure during the CPP period. The eligible work includes:

5.15.1 work that is dependent on a capacity requirement, caused by a change in security of supply, or an increase in demand or generation on Aurora's network; and

5.15.2 work that may be required due to risk events relating to the condition of the network that were unknown at the time of review of the CPP proposal.

5.16 These mechanisms, and the IM variations to give effect to them, are further explained in Attachments D and J.

We propose requiring Aurora to report on ongoing improvements in its data quality processes

5.17 One of the reasons that Aurora applied for a three-year CPP rather than for five years, is that it is working on improving its asset data and asset management maturity in order to support network planning and expenditure forecasting.

5.18 We propose requiring Aurora to disclose information each year that details how it is improving its processes for data collection and data quality. This will help consumers assess whether or not they are paying too much for the delivery of work on Aurora's network due to inefficient data collection and data quality practices. Further information on this information disclosure requirement is contained in Attachment I.

[133] See Attachment B.

We considered other measures and excluded them

Mid-period re-opener of the approved revenue in year three of the CPP period

5.19 Regulators in other jurisdictions have sometimes allowed a mid-period review of a suppliers' performance, with the potential to reopen the price-quality path to reflect a change in circumstances during the CPP regulatory period.[134]

5.20 If we adopted an analogous approach for Aurora, this could allow for projects to be reconsidered (both added to the list and removed from the list with revenue adjustments) via a review halfway through the CPP period (circa year three). We excluded this as an option, as it may result in material uncertainty for Aurora and potentially deter needed investment in the Aurora network.

A shorter regulatory period of three years

5.21 To address any uncertainty over medium term expenditure needs discussed above, Aurora proposed a three-year CPP period in its CPP application. Aurora submitted that this gives it more time to correctly identify necessary work required on its network and to accurately forecast the required spend in years four and five. It explained that this was the primary reason for proposing a three-year CPP period.[135]

5.22 We consider that any information uncertainty in years four and five of a five-year CPP period is instead able to be addressed through the reconsideration mechanisms described above for unforseen and uncertain work. Our detailed draft reasons for a five-year term over a three-year term for the CPP are set out in Attachment B.

Ensuring Aurora's spend on the required work is right-sized, it is incentivised to complete its work efficiently and continues to work on cost efficiencies

We reviewed Aurora's costs for the proposed work

5.23 Our evaluation of Aurora's proposed capex and opex spend for the required work included a review of its unit costs and contracting arrangements. Our assessment was that for the most part, the unit rates had been adequately tested and found to be consistent with industry unit costs.

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134 https://www.ofgem.gov.uk/ofgem-publications/51871/riiohandbookpdf at para 11.13 and https://www.ofgem.gov.uk/publications-and-updates/decision-mid-period-review-riio-ed1

135 Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), para 187-190

5.24 The contracting arrangements with its new field service providers Unison and Connetics that Aurora has put in place should create some competitive tension and cost efficiencies. However, we do have concerns as to whether some of the arrangements with Delta are on competitive, arms-length terms, in particular for the cost of vegetation management. Detailed analysis and conclusions are set out in Attachments D and E.

We are considering requiring Aurora to report on cost efficiencies

5.25 The review of costs we performed, as described above, is only a snapshot in time, ie it is based on where Aurora is currently at.

5.26 We propose requiring Aurora to disclose information each year that details how it is developing its processes to improve the quality of its project cost estimation. This will help consumers assess whether or not they are paying too much for the delivery of work on Aurora's network due to inefficient cost estimation practices. Further information on this information disclosure requirement is contained in Attachment I.

5.27 In addition, under our Part 4 regulation, setting the price path in advance provides Aurora with incentives to focus on improving cost efficiencies over time. Aurora benefits from any improved efficiencies during the CPP period because it is permitted to earn the allowed revenue and keep the benefits of any cost reductions as increased profit. At the end of the CPP period, the benefits of any efficiency gains are shared with consumers through lower prices in future periods. This incentive arrangement ensures that the sharing of benefits remains constant over time.

We considered other measures and excluded them

Changing incentive rates

5.28 The sharing of cost efficiencies between Aurora and consumers under the incentive mechanism described in the preceding paragraph is determined by the incentive rates. For DPP3, these are 23.5% for capex and 23.5% for opex. This means for every dollar of savings (or overspends), Aurora receives 23.5 cents and consumers receive 76.5 cents of the savings as lower prices. If Aurora overspends, Aurora bears 23.5% of this and consumers bear 76.5%.

5.29 We have the option of altering these incentive rates for a CPP. We considered whether we should have tailored incentive rates for opex and capex or alter the rates for overspends (minimising these for consumers).

5.30 We have not seen any evidence that would justify changing the incentive rates for opex and/or capex relative to those applying during the DPP. We consider that the current setting of the rates is appropriate for Aurora and is generally consistent with the incentives facing lines companies under the DPP.[136]

Aurora delivers on the planned work that it has committed to

We propose requiring Aurora to produce an Annual Delivery Report

5.31 There would be benefit in ensuring Aurora is active and transparent about how it is delivering the proposed investment during the CPP period. We propose requiring Aurora to prepare an Annual Delivery Report (ADR) that will compare what Aurora has delivered against what it said it would deliver.

5.32 Aurora has indicated to us that it is committed to ensuring transparency around the delivery of its CPP programme. It is already reporting satisfactorily on its progress in addressing the problems identified in the WSP state of the network review each quarter (since July 2019).[137] The ADR is a larger-scale, more holistic extension of the WSP progress reporting.

5.33 We introduced an ADR requirement for Powerco linked to its CPP, and we consider it is working well. [138] The ADR requirements for Aurora could include detail on a regional basis and would be modelled on the Powerco ADR but tailored to reflect Aurora's different situation and challenges.

5.34 We propose that an ADR should be a stakeholder facing document that provides an easy to understand, annual update on Aurora's progress against the key commitments made in its CPP proposal. An ADR could be in a format which is engaging for consumers and formatted to be as interactive as possible, using infographics and other media where appropriate.

5.35 Some of the information that might be provided in an ADR may already be recorded and reported on as part of our existing ID requirements under Part 4 of the Act. However, we propose requiring that this is still included in an ADR for ease of reference by consumers and other interested persons.

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[136] See Attachment F.

[137] Aurora Energy "Annual Update on WSP Action Plan" 31 July 2020)

[138] Commerce Commission "Final decision on Powerco's 2018-2023 customised price-quality path (28 March 2018), p. 138-145.

5.36 We propose that the ADR would include a combination of objective volumetric (ie, numbers) and more subjective qualitative measures (ie, more commentary) that clearly demonstrate how Aurora, through the CPP regime, is delivering for consumers.

5.37 Table 5.3 details potential ID measures for the ADR.

Table 5.3 Potential ID measures for the ADR

Category	Potential measures
QUALITATIVE MEASURES	
Introduction from Board/CEO	Explains key achievements in delivering CPP commitments and a high-level description of why progress is as forecast, ahead or behind schedule
CPP outcomes	Describes what Aurora is doing to ensure CPP outcomes are achieved and rolled out as efficiently as possible
Progress against overall programme milestones	Descriptive narrative on overall progress to date, status of projects still on track for successful delivery and if these are behind schedule, describe the reasons and actions to bring the projects back on track
Consumer engagement initiatives	Description of how Aurora has engaged with consumers in each of the three regions using various communication channels including public meetings, results of regional stakeholder events to present the ADR, detail proposed actions as a result of these events, narrative on outage communication performance and actions to improve, initiatives around worst served customers, vulnerable customers, providing quicker connections, charity work
Customer satisfaction	Detail the number of customer complaints received both general and in reference to charter commitments and the response times to these Complaints to include ones referred to utilities disputes. It will also include those complaints related to voltage quality issues
Quality of services	High level summary to be published in the ADR, with supporting detail able to be published separately (eg on Aurora's website): Description of how Aurora is improving consumer awareness of its existing charter, how it is tracking with meeting its existing service commitments in its charter and results of consumer consultation on proposed changes to its charter, including a mid-period expert review in year 3 of the CPP period (refer also to further details of this ID requirement in Attachment I) Update of progress in improving voltage quality on its LV network processes against ID requirement, including a mid-period expert review in year 3 of the CPP period, as outlined below (refer also to further details of this ID requirement in Attachment I)

Category	Potential measures
Safety initiatives	Identify top 5 safety risks in the network, list and discuss statistics and corrective actions on public hazard and protection failure incidents Describe measures implemented to improve public and staff safety Explain how the cost effectiveness of safety investments have been determined using frameworks such as ALARP Summarise investments by asset class that have been installed for safety purposes If applicable, consider a mid-period expert review in year 3 of the CPP period, as outlined below (refer also to further details of this ID requirement in Attachment I)
Environmental initiatives	Description of any initiatives taken to reduce the overall environmental impacts of operations
Regional pricing	High-level summary to be published in the ADR, with supporting detail able to be published separately (eg on Aurora's website) Update on consumer interactions as a result of enhanced regional pricing disclosures against ID requirement (refer to further details of this ID requirement in Attachment I)
Asset management improvements	High-level summary to be published in the ADR, with supporting detail able to be published separately (eg on Aurora's website) Update of progress in improving asset management processes against ID requirement, including a mid-period expert review in year 3 of the CPP period, as outlined below (refer also to further details of this ID requirement in Attachment I)
Project quality assurance improvements	High-level summary to be published in the ADR, with supporting detail able to be published separately (eg on Aurora's website) Update of progress in improving project quality assurance processes against ID requirement (refer to further details of this ID requirement in Attachment I)
Cost estimation process improvements	High-level summary to be published in the ADR, with supporting detail able to be published separately (eg on Aurora's website) Update of progress in improving cost estimation processes against ID requirement (refer to further details of this ID requirement in Attachment I)
Data collection and data quality process improvements	High-level summary to be published in the ADR, with supporting detail able to be published separately (eg on Aurora's website) Update of progress in improving data collection and data quality processes against ID requirement (refer to further details of this ID requirement in Attachment I)
QUANTITATIVE MEASURES	
Financial performance of opex and capex projects and programmes	Actual spend vs planned spend of projects and programmes with high-level reasons for variance for each region split by category: • Capex- renewals, growth and security, other network, non-network (and further detail on sub-categories within each) • Opex – network, non-network (and further detail on sub-categories within each)

Category	Potential measures
Asset replacement	By region, actual assets (with further detail on asset categories) replaced vs planned with high-level reasons for variance and unit cost per unit replaced
Projects	By region: • description on progress (% complete) and priority of all projects and programmes
Outages	By region: • unplanned and planned SAIDI and SAIFI • actual performance against charter commitments, with high-level reasons for variance • average length of planned and unplanned outages on the distribution and sub transmission network • actual performance against its implied planned outage notification improvements.
Worst served customers performance	By region, report on worst served customers: • Numbers of planned/unplanned outages • Length of outages • Restoration times
Maintenance backlogs	By region: • Work backlog numbers and age profile split by corrective, preventative and reactive maintenance • Description of progress on clearing backlogs
Vegetation management	By region: • Kilometres of vegetation inspected and cleared, rates per kilometre

5.38 Before making our draft ID decision, we will be seeking feedback from Aurora to further explore the potential content of an ADR. We want to understand how an ADR could be able to be produced each year in an efficient manner by utilising the information Aurora already has, and the reporting that it may be doing as part of its business as usual practices.

We are considering requiring Aurora to present its ADR to its consumers in the regions

5.39 Annual public meetings in each of Aurora's regions would provide valuable opportunities for Aurora to present its progress to consumers in terms of delivering the CPP. As one of the required manners and forms of disclosure of ID we are considering requiring Aurora to hold annual public meetings with its consumers on the ADR in each of its three regions. [139] We would perform our own analysis on the ADR to help consumers assess Aurora's progress

5.40 During the CPP period we would analyse, and could publicly release our own views and comments on the ADR. Interested persons would be able to consider and comment on the information disclosed by Aurora, along with any analysis we publish.

We propose requiring Aurora to report on any mid-period expert opinions on its progress on some areas of the ADR to provide further assurance

5.41 The numerical information in the ADR would be audited in accordance with the same standards as the existing ID requirements.

5.42 We propose requiring Aurora to disclose a mid-period (year 3) expert opinion on complex areas that are important to consumers and other stakeholders but where performance is difficult to assess. Such a report should provide additional information and scrutiny of Aurora's progress against its CPP plan, and in other areas it needs to develop over the CPP period such as monitoring of voltage quality, asset management, safety risk reduction and quality of services.

5.43 A considered expert report on a key topic reflecting up-to-date information should provide considerable benefit to all interested persons in testing Aurora's progress. Such an opinion will also provide a mechanism to surface any issues or areas of concern to stakeholders, should they arise. We have implemented this previously in Transpower's Individual Price-Quality Path reset.[140]

We will continue our engagement with WorkSafe NZ

5.44 WorkSafe NZ's Energy Safety team is the regulator for ensuring the safe supply and use of electricity and gas in NZ.

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[139] Commerce Act 1986, Section 53C(1)(d) and (e).

[140] Commerce Commission "Transpower Individual Price-Quality Path from 1 April 2020 - Companion paper to final RCP3 IPP determination and information gathering notices" (14 November 2019), para 2.25-2.26.

5.45 We already have in place a regular working relationship with WorkSafe NZ. Given that one of the three key drivers of Aurora's CPP application is to improve safety, we intend to continue sharing, at a high-level, Aurora's progress in delivering safety improvements with WorkSafe NZ, so it is informed. In the unlikely event that safety deficiencies or non-delivery of safety improvements becomes apparent, especially on critical safety work, an avenue then exists for potential intervention by WorkSafe NZ.

Other ADR-related measures that were considered and not proposed

Additional quality standard linked to delivered outputs

5.46 We are not considering an additional quality standard linked to delivered outputs such as poles replaced versus poles planned. Based on our previous experience with output measures, and upon examining our powers, we are aware it would be challenging to specify these outputs accurately. In addition, if Aurora's circumstances changed during the period or the outputs were too narrowly specified, then Aurora would be incentivised to comply with the output measures rather than respond to the change in circumstances or, stick to the narrow wording of a determination rather than what may be in the best interests of its customers.

Aurora improves transparency and responsiveness towards consumers

We propose requiring Aurora to provide information on improvements it has undertaken on its compensation scheme based on any consultation it might have undertaken with its consumers

5.47 In its CPP proposal, Aurora noted its commitment towards the retention and improvement of its customer charter and compensation scheme. We understand Aurora plans to undertake consultation targeting improvement of its compensation scheme and service level commitments.

5.48 We commend Aurora for having a compensation scheme and we are proposing to use our ID powers to ensure they stay true to their promise of consulting and potentially improving it over the period.

We are considering requiring Aurora to provide information on quality of services

5.49 We propose requiring Aurora to provide information each year through an information disclosure requirement to help consumers understand how it is progressing with improving its quality of services. Any such reporting will be focussed on causes of outages, outage-related communication, network reliability and safety improvements, the extent to which Aurora is meeting its charter commitments and its consumer engagement initiatives. Further detail on this is contained in Attachment I.

5.50 The ADR will summarise how Aurora is progressing against this requirement.

There are other quality measures which we are have considered but not proposing

Additional quality standard on voltage quality

5.51 Power quality featured strongly in some submissions to us. It appears that many of the power quality issues raised with us in submissions may be voltage regulation problems or loose or poor connections on the LV network, causing voltage reference changes, for example. Both issues can affect the end user significantly.

5.52 We are not considering imposing a voltage quality standard in this CPP. We consider that it would be unreasonable for us to expect Aurora to carry a network-wide monitoring programme amid its focus on replacing and renewing a significant volume of its primary asset fleet for reliability and safety reasons.

5.53 However, our draft view is that we will require Aurora to provide an updated plan in the first half year of the CPP period that details how it will continue to develop improvements to its processes for monitoring of voltage quality on its LV network and how it plans to communicate the results of those improvements to customers. In disclosure years two through five of the CPP period, we will also require Aurora to provide an annual update against that plan on Aurora's performance on developing those improvements.

5.54 We also propose requiring Aurora to include in the ADR, a report on voltage quality related complaints from consumers. We consider this would be a useful first step to better enable stakeholders to understand the extent of any voltage problems on Aurora's network and for Aurora to describe actions taken to investigate and resolve these in accordance with its commitments relating to voltage quality in its customer charter.[141] This reporting requirement is similar in intent to the quality reporting mechanisms we imposed on Transpower in our RCP3 IPP decision in 2019.[142]

5.55 Similar to our potential ID measure on asset management improvements, we also propose to include a measure on how Aurora is improving the monitoring of voltage quality during the CPP period (see Table 5.3).

[141] Aurora's voltage level commitments which it would report against are consistent with the voltage supply requirements in the Electricity (Safety) Regulations 2010. These regulations provide for offences if the voltage supply requirements are contravened.

[142] Commerce Commission "Transpower Individual Price-Quality Path from 1 April 2020 - Companion paper to final RCP3 IPP determination and information gathering notices" (14 November 2019)

5.56 We have also agreed that much of the Future Networks capex programme that Aurora has applied for, meets the expenditure objective. This is a programme that is focussed on monitoring LV networks in anticipation of EV and solar PV uptake. This programme contains funding to install LV network monitoring. We encourage Aurora to use some of this funding to address the existing voltage quality issues in its network before addressing future network issues.[143]

Aurora enables consumers to better understand the impact of this CPP on their prices

5.57 We undertook our own modelling of the residential price impact and have developed two initiatives intended to improve Aurora's customers' understanding of the impact of Aurora's CPP on their electricity bills. These two initiatives are described below.

We undertook our own modelling of the residential price impact of our CPP revenue settings

5.58 We have modelled the price impact of our draft decision on Aurora's CPP for its residential customers. We sought further assurance by having the model reviewed by an independent reviewer. We modelled price impacts for three residential profiles - small, medium and large residential users. Our modelling is described in Attachment H.

5.59 The outcomes of the modelling should provide Aurora's consumers with a good indication of the sort of price impact they can expect from the draft CPP decision. We note though, that Aurora has signalled it intends to review its pricing methodology and this could lead to changes in the prices charged to different consumers.

We propose requiring Aurora to disclose more information on regional pricing to make it easier for consumers to understand its pricing methodology

5.60 Aurora divides its network into three pricing regions for the purpose of determining and applying its network prices. We are not responsible for regulating the pricing approach for Aurora or other electricity lines companies. This is the responsibility of another regulator, the Electricity Authority. However, we do impose as part of our information disclosure determination (original 2012 updated in 2018) requirements on electricity lines companies to disclose their pricing methodology, and the content of their pricing methodology.[144]

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[143] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), Section G.1, p.150.

[144] https://comcom.govt.nz/__data/assets/pdf_file/0025/78703/Electricity-distribution-information-disclosure-determination-2012-consolidated-3-April-2018.pdf.

5.61 That pricing methodology disclosure requires, among other things, an electricity lines company to include sufficient information and commentary to enable interested persons to understand how prices were set for each consumer group, and demonstrate how the prices are consistent with the Electricity Authority's pricing principles.

5.62 Aurora's current pricing methodology was published on 1 April 2020. We reviewed this methodology and identified areas where further information could be provided to allow an interested party to better understand Aurora's price setting approach, and the implications, especially as it relates to the regional pricing approach it adopts.

5.63 We propose requiring Aurora to provide enhanced information on its regional pricing to enable consumers to better understand how prices are set. Further information on this potential requirement is described in Attachment I.

5.64 In summary, the additional information that we propose requiring Aurora to disclose includes:

5.64.1 Information that allows interested persons to understand the implications of the assumptions, and methodological choices made on prices for each consumer group in each of Aurora's pricing region;

5.64.2 a worked example for a standard consumer in each consumer group (i.e. for a residential consumer that used 9000 kWh/year) in each of its pricing regions as to how that consumer's prices are set; and

5.64.3 Aurora's cost of supply model down to a level that individual contracts cannot be identified.

5.65 This will help highlight aspects of Aurora's pricing that consumers either do not understand fully yet or have questions about, and motivate engagement around this issue.

We are engaging with MBIE and the Electricity Authority over some other consumer concerns that were raised

5.66 A number of consumers expressed concern in submissions to us about regional pricing and questioned the fairness of Aurora's practices. Regional pricing concerns relate more closely to the mandate of the Electricity Authority than ours. A representative from the Electricity Authority attended some of our stakeholder engagement sessions and we understand the Authority is planning to review Aurora's pricing methodology to make sure it is consistent with its objectives. We are engaging with the Electricity Authority on this matter.

5.67 We also heard concerns from some consumers about the structure of the electricity market not serving them well, and in particular the risks to consumers in some regions when the electricity lines company is effectively owned by consumers from another area. We have written to advise MBIE of this issue, including the request from consumers at the stakeholder engagement session in Alexandra to raise this issue with Government.

We considered other measures and excluded them

Price impact modelling for commercial consumers

5.68 Our modelling of the bill impact has been limited to residential consumers only, which have been categorised as low, medium and high usage users. We decided not to extend this analysis to commercial customers, as it would be difficult to identify and estimate price impacts for representative commercial users. However, we expect that the requirement for enhanced ID information on regional pricing would extend to both residential and commercial consumers.

Regional price paths

5.69 Some stakeholder submissions asked that we set regional price paths for various parts of the Aurora network. We are not considering this because it would be impractical within the statutory timeframes for setting a CPP due to its complexity, challenging issues, and time-consuming nature.

Attachment A Our regulatory framework and evaluation approach

Purpose of this attachment

A1 This attachment explains the approach we have taken to evaluate Aurora's CPP proposal and make our draft decision. It starts by explaining the framework that we have applied in order to make a decision that delivers long-term benefits to consumers. The latter part of the attachment sets out the process we have used to apply this framework.

The Commerce Act guides our determination of Aurora's CPP

A2 Part 4 provides for the regulation of the price and quality of goods or services in markets where there is little or no competition, and little or no likelihood of a substantial increase in competition[145]. For electricity distributors, it sets out that regulation should apply in two forms:

A2.1 ID regulation, under which regulated suppliers are required to publicly disclose information relevant to their performance.[146]

A2.2 Price-quality regulation, under which price-quality paths set the maximum average price or total allowable revenue that the regulated supplier can charge. They also set standards for the quality of the services that each regulated supplier must meet. This ensures that businesses do not have incentives to reduce quality to maximise profits under their price-quality path.[147]

A3 Section 53M of the Act sets out the content of price-quality paths. Price-quality paths must specify:

A3.1 either the maximum prices that may be charged, or the maximum revenue it may recover;[148]

A3.2 any quality standards that must be met;[149] and

A3.3 the regulatory period to which the price-quality path relates.[150]

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[145] Commerce Act 1986, Section 52.

[146] Commerce Act 1986, Section 52B and 54F. As per Section 54, information disclosure applies to all Electricity lines companies subject to Part 4.

[147] Commerce Act 1986, Section 52B and 54G.

[148] Commerce Act 1986, Section 53M(1)(a)

[149] Commerce Act 1986, Section 53M(1)(b).

[150] Commerce Act 1986, Section 53M(1)(c)

A4 Additionally, price-quality paths may include incentives (including penalties) for individual suppliers to maintain or improve their quality of supply.[151]

A5 By default, Aurora is subject to the default price-quality path.[152]

A6 Electricity lines companies subject to a default price-quality path have the option of applying for a customised price-quality path to better meet their particular circumstances. To do this, an electricity lines company must make a CPP proposal to us,[153] which applies the applicable input methodologies.[154] This is what Aurora has done.

A7 Once we have decided that a proposal complies with the input methodologies, we must determine a CPP within 150 working days.[155] In determining a CPP we are not constrained to what was proposed, but may set a price-quality path that we consider appropriate (within what is contemplated in Section 53M).[156] When deciding what CPP is appropriate, we apply the Evaluation Criteria.[157]

A8 We must also consider the purpose of Part 4 of the Commerce Act – to promote the long-term benefit of consumers.[158]

The purpose of Part 4 of the Commerce Act

Section 52A purpose of Part 4

(1) The purpose of Part 4 is to promote the long-term benefit of consumers in markets referred to in section 52 by promoting outcomes that are consistent with outcomes produced in competitive markets such that suppliers of regulated goods or services—

a. have incentives to innovate and to invest, including in replacement, upgraded, and new assets; and

b. have incentives to improve efficiency and provide services at a quality that reflects consumer demands; and

c. share with consumers the benefits of efficiency gains in the supply of the regulated goods or services, including through lower prices; and

d. are limited in their ability to extract excessive profits.

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[151] Commerce Act 1986, Section 53M(2).

[152] Electricity Distribution Services Default Price-Quality Path Determination 2020.

[153] Commerce Act 1986, Section 53Q.

[154] The input methodologies applicable to CPP proposals are Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26, Part 5.

[155] Commerce Act 1986, Section 53T(2).

[156] Commerce Act 1986, Section 53V.

[157] Discussed from para A11.

[158] Commerce Act 1986, Section 52A.

A9 We must also promote incentives, and avoid imposing disincentives, for suppliers of electricity lines services to invest in energy efficiency and demand side management, and to reduce energy losses.

A10 The Act also requires us to set rules and processes for CPPs – these rules and processes are referred to as input methodologies.

A11 The extant input methodologies relating to CPPs include the requirements that must be met by the applicant for information, verification, audit and consumer consultation, as well as the criteria that we must use to evaluate a CPP proposal.[159,160]

The CPP evaluation criteria

A12 The criteria that we must use to evaluate a CPP are set out in electricity lines company input methodologies.[161] These criteria are intended to ensure that our determination of a CPP promotes the long-term benefit of consumers.

Evaluation criteria for customised price-quality path proposals

The Commission will use the following evaluation criteria to assess each CPP proposal:

a. whether the proposal is consistent with the input methodologies;
b. the extent to which the proposal promotes the purpose of Part 4 of the Act;
c. whether data, analysis, and assumptions underpinning the proposal are fit for the purpose of determining a CPP;
d. whether the proposed capital and operating expenditure meet the expenditure objective;
e. the extent to which any proposed changes to quality standards reflect what the applicant can realistically achieve, taking into account statistical analysis of past SAIDI and SAIFI performance; and/or (ii) the level of investment provided for in the proposal; and
f. the extent to which the CPP applicant has consulted with consumers on its CPP proposal; and the proposal is supported by consumers, where relevant.

A13 We briefly explain each of the evaluation criteria below.

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[159] *Electricity Distribution Services Input Methodologies Determination 2012* [2012] NZCC 26, Part 5

[160] As required by the Commerce Act 1986, Section 52T.

[161] *Electricity Distribution Services Input Methodologies Determination 2012* [2012] NZCC 26, clause 5.2

Whether the proposal is consistent with the relevant input methodologies

A14 Aurora's proposal must apply or adopt all relevant input methodologies (IMs).[162] The IMs establish the key rules, requirements and processes of regulation.

A15 Our evaluation of Aurora's proposal included assessing whether the proposal was consistent with the IMs. This included an assessment, prior to accepting the proposal, of whether the proposal met the CPP process and content IM requirements; as well as an assessment of whether the proposal met the substantive IMs for determining a CPP.

The extent to which the proposal will promote the purpose of Part 4

A16 To satisfy the evaluation criteria the proposal must promote the purpose of Part 4 of the Act, outlined above. The Act's purpose is to promote the long-term benefit of consumers by promoting outcomes that would occur in competitive markets in the manner set out in Section 52A(1)(a)-(d).

Whether the information in the proposal is fit for purpose

A17 The information in a proposal must be sufficient in detail and quality to allow us to undertake our assessment.[163] The assumptions used must also be robust. Where we considered further information was necessary to establish it was fit for purpose, we requested this from Aurora. Where we had doubts about the appropriateness or robustness of an assumption, we sought further explanation for the assumption or used a more appropriate assumption.

Whether the proposed expenditure reflects the expenditure objective

A18 The expenditure objective was included in the IMs as a specific evaluation criterion for the assessment of capital expenditure and operating expenditure.[164]

A19 The expenditure objective requires us to assess Aurora's proposed capital expenditure and operating expenditure on the basis that it reflects the efficient costs that a prudent supplier, subject to price-quality regulation, would require to:

A19.1 meet or manage the expected demand for electricity distribution services, at appropriate service standards, during the customised price-quality path regulatory period and over the longer term; and

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[162] Commerce Act 1986, Section 53Q(2)(d).

[163] Commerce Commission "Input Methodologies (Electricity Distribution and Gas Pipeline Services) Reasons Paper" (22 December 2010), para 9.4.8.

[164] Commerce Commission "Input Methodologies (Electricity Distribution and Gas Pipeline Services) Reasons Paper" (22 December 2010), para 9.4.10.

A19.2 comply with applicable regulatory obligations associated with those services.[165]

A20 The assessment of forecast expenditure is not a mechanistic process – it requires the exercise of judgement by us, potentially supported by expert advice.

A21 In considering whether the expenditure objective is satisfied, it is also relevant to recognise that much of Aurora's proposed expenditure is primarily directed at making its network safer. Keeping its network safe is an applicable regulatory obligation on Aurora pursuant to the Health and Safety at Work Act 2015 and regulations or other subordinate legislation under it. As such, network safety is an element of the expenditure objective.

A22 The assessment of forecast expenditure focusses on the CPP regulatory period. However, the expenditure objective provides that we may also consider meeting the demand for services at appropriate service standards over the longer term as well.

Whether the proposed quality standard variation is realistically achievable

A23 The evaluation criteria require us to assess the extent to which the proposed quality standard variation[166] better reflects the realistically achievable performance of Aurora over the customised price-quality path regulatory period than Aurora's quality standards under its existing DPP.

A24 In assessing Aurora's realistically achievable performance we will take into account either or both of:

A24.1 a statistical analysis of past SAIDI or SAIFI performance;

A24.2 the level of investment provided for in the revenue we allow Aurora to recover from consumers.

The extent of Aurora's consultation with consumers and support from Aurora's consumers

A25 We will consider the extent to which Aurora has consulted with its consumers and the consumers support to the proposal.

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[165] *Electricity Distribution Services Input Methodologies Determination 2012* [2012] NZCC 26, clause 1.1.4.

[166] A quality standard variation means a variation to the metrics of an existing quality standard, but not the quality standard itself. We are not precluded from setting standards other than those proposed by the supplier.

A26 Although, consumer agreement to the proposed customised price-quality path is not required, we will have regard to the extent of support (or opposition) for the matters that were raised by Aurora in its consultation with consumers on its proposal.[167] We will also have regard to feedback we received from customers on the issues we raised in our Issues Paper package, in public stakeholder engagement sessions we convened, and we will take into account submissions on this draft decision.

A27 The degree to which consumer feedback is likely to be relevant depends on the extent to which an electricity lines company seeks to justify proposed investments or changes on the basis of consumer demand.[168]

If a CPP proposal does not satisfy the evaluation criteria then we must set a CPP that does

A28 Where we conclude that Aurora's proposal fully satisfies the evaluation criteria, then we are likely to set a CPP based on that proposal.

A29 However, where we consider that Aurora's proposal does not satisfy the evaluation criteria, we must still set a CPP. In that case, we will seek to set a CPP that better satisfies the evaluation criteria.

A30 The depth and extent of our analysis for considering a CPP that better meets the evaluation criteria will vary for different customised price-quality path proposals, depending on the robustness and quality of the proposal.

Our determination of the duration of the CPP

A31 The default term for a CPP is five years. However, we may set a CPP of a shorter duration (to a minimum of three years) if we consider that the shorter duration will better meet the purpose of Part 4 of the Act.

A32 It is our decision whether to depart from a five-year duration or not, and we can consider whether this better meets the purpose of Part 4 at our own initiative or if it is sought by a CPP applicant.

A33 If a CPP applicant seeks to have us depart from the five-year period, the CPP proposal must contain an explanation of why the shorter duration better meets the purpose of Part 4 of the Act than five years.

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[167] Commerce Commission "Input Methodologies (Electricity Distribution and Gas Pipeline Services) Reasons Paper" (22 December 2010), para 9.4.16.

[168] Commerce Commission "Input Methodologies (Electricity Distribution and Gas Pipeline Services) Reasons Paper" (22 December 2010), para 9.4.15.

A34 Aurora has sought a three-year CPP and provided reasons why it says that duration better meets the purpose of Part 4 of the Act. Given that Aurora has sought a shorter term the onus is on us to now consider whether the three-year duration would better meet the purpose of Part 4 of the Act than a five-year term. When considering the duration of a CPP, there will generally be a tension between the greater flexibility offered by a shorter term and the greater certainty offered by a longer term:

A34.1 A shorter term will offer greater flexibility because it allows for the price-quality path to be re-examined sooner. A shorter CPP may mean earlier corrections of expenditure allowances if they prove inadequate or excessive, and/or to amend quality standards (potentially due to a change in circumstances or incorrect forecasts).

A34.2 A longer term will promote greater certainty because the electricity lines company, consumers and other interested persons will know what regulation applies to the electricity lines company for a longer period. This may better promote investment because the electricity lines company has greater certainty as to its revenue allowances and quality restrictions, so is better able to plan for them. It may also promote efficiency improvements because, the electricity lines company has a longer period to profit from any efficiency improvements.

A35 In the face of this tension the default term is set at five years, meaning that the certainty of a five-year term will generally prevail over the flexibility of a shorter term. Accordingly, in determining the duration of Aurora's CPP we have considered:

A35.1 whether the need for the flexibility offered by a shorter term is heightened in the case of Aurora's CPP;

A35.2 whether the need for the certainty offered by a term of five years is lessened in the case of Aurora's CPP; and

A35.3 whether there is any other reason why a CPP of a particular duration would better meet the purpose of Part 4 in the circumstances of Aurora's CPP. [169]

A36 Having regard to the above factors we would determine whether a shorter duration for Aurora's CPP would better meet the purpose of Part 4. Because five years is the default, if we are unable to determine that the purpose of Part 4 is better met by either a three year or five-year CPP, then we will set a five-year CPP.

[169] For example, where we decided that three years was sufficient to complete the additional expenditure provided for by the CPP.

A37 In making our decision we will also have regard to Aurora's indication that it is likely to seek a successive CPP. Aurora is not permitted to apply for a further CPP during the present DPP regulatory period, and therefore would not be able to apply for a successive CPP to follow a three-year CPP.

A38 In setting the term of a CPP, we will not usually be in a position to consider the revenue allowances, quality standards or other provisions that would be allowed under a five-year CPP relative to a CPP of a shorter duration. This is because to make a meaningful comparison we would have to look at the same term – the five-year CPP against the three-year CPP followed by whatever price-quality path the electricity lines company reverts to at the conclusion of the CPP. However, we will not always know what price-quality path an electricity lines company will revert to at the time of setting its CPP (it may or may not seek a subsequent CPP), or if it was to revert to the DPP (as Aurora will if we determine a three-year CPP) what prices or quality standards it would be subject to.

Attachment B Setting the term of Aurora's CPP period

Purpose of this attachment

B1 This attachment outlines our draft decision on the length of the CPP period.

Summary of our draft decision

B2 The Act states that the term of a CPP is five years, but we may set a shorter period if we consider this would better meet the purpose of Part 4, but in any event may not set a term of less than three years.[170]

B3 Our draft decision is for a term of five years for the CPP period, commencing on 1 April 2021. Our draft decision differs from the three-year period proposed in Aurora's CPP application.

B4 Our view on the optimal term for the CPP is based on the following:

B4.1 A default five-year CPP period is specified in section 53W(1) of the Act;

B4.2 Having reviewed Aurora's application and its subsequent submission on our Issues Paper package we do not think a shorter period better meets the purpose of Part 4;

B4.3 Our reliability analysis does not support a shorter CPP period better meeting the purpose of Part 4 (refer Attachment C);[171]

B4.4 Our expenditure analysis indicates that any Aurora project uncertainty, which forms the basis of Aurora's request for a shorter CPP period, is likely to be primarily related to the capex forecasts (refer Attachment D);

B4.5 Timing uncertainty and the uncertainty of the project amounts for capex projects in a five-year CPP period are likely to be able to be addressed through existing regulatory tools already available to us in the DPP or in the IMs; and

B4.6 Whilst Aurora has signalled the potential for an application for a second CPP following this current CPP application, our interpretation of the Act is that Aurora may not apply for a second CPP within DPP3 (ie, if we set a three-year CPP period that sits wholly within DPP3).[172] Aurora would need to wait until DPP4 to make its next CPP application, meaning greater complexity of the processes for setting and applying future price-quality paths.

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[170] Section 53W of the Act.

[171] Attachment C, The proposed planned outage standard level is appropriate and achievable, para. C85.

[172] Section 53Q(3) of the Act.

B5 In summary, we consider the risk and effect of revenue over-recovery or under-recovery under a five-year CPP period to be small. Our view is that the benefits from the price and quality certainty associated with a five-year CPP outweigh the risk and effect of revenue over-recovery or under-recovery.

B6 We acknowledge Aurora's forecasting for year four and year five of a five-year CPP period has a greater potential for annual revenue uncertainty than otherwise could be possible if better asset condition data was available. However, the forecasting approach taken is reasonable, and the potential bias towards over-forecasting is not considered overly material, because the revenue impacts, and thus consumer price impacts, will be muted due to the long recovery time for capital expenditure.

B7 Furthermore, we have proposed IM variations to introduce uncertainty mechanisms that, if agreed with Aurora, would enable us to defer some expenditure decisions now. These IM variations set out in Attachment J address demand uncertainty related to growth and security and consumer connection capital expenditure.[173]

Aurora's proposed three-year term for the CPP period

B8 Aurora submitted its CPP application for a three-year period, as opposed to the standard five-year period.

B9 In its CPP application, Aurora raised the following key points regarding the application for approval of a three-year CPP period:

> 64. The long term implications of the Covid-19 pandemic are still emerging as this report is being written, but are expected to affect the community and the local economy, with the hospitality and tourism sectors especially hard hit. We consider that our proposal for a 3-year CPP period helps manage the uncertainty arising from Covid-19 impacts.[174]
>
> 189. Aurora Energy considers that a CPP Regulatory Period of three years better meets the purpose of Part 4 of the Act than five-years, for the following reasons:
>
> 189.1. Aurora Energy's expenditure has increased significantly in advance of our CPP proposal. This has been largely in response to Aurora Energy's historic under-investment in the network, which has resulted in deterioration of network assets that now requires remediation (as set out in detail in our 2018 AMP and 2019 AMP update). Our current focus is on investing to reduce the level of risk on the network. This will need to be facilitated by improvements in our delivery capability and supporting processes. In due course we expect our expenditure requirements to revert to a long-term sustainable steady state. However, the exact timing is uncertain.

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[173] Attachment J, Reconsideration mechanisms, para J23 to J38.

[174] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), p. 1, Executive Summary, 1.3 What changed as a result of customer feedback and independent review, 1.3.5 The impact of Covid-19 pandemic, para 4.

189.2. In parallel, we are working on improving our asset data and asset management maturity in order to support network planning and expenditure forecasting. As the Commission knows, we are on an asset management maturity journey starting from a comparatively low base.

189.3. As with other EDBs, the accuracy and granularity of our forecasts will vary over time. However, we consider that Aurora's current circumstances mean that accurately forecasting medium- to long-term future expenditure is particularly challenging. The combination of the step change in our investment requirements in the past several years and our relative lack of asset management maturity presents a challenge for forecasting expenditure over a 5-year regulatory period.

189.4. We have put in place comprehensive plans for the next three years primarily focussed on prudent asset renewal and stabilising network performance and have a high degree of confidence in our forecasts for the first three years of the CPP period (RY2022 – RY2024). However, we do not have the same level of confidence in our forecasts beyond RY2024. We believe a three-year period will ensure better outcomes for customers over the medium term by reducing the potential for less than optimal investments.

189.5. We therefore consider that, under a five-year CPP, there would be a significant risk of over or under-recovery in RY2025 and RY2026. If Aurora were to over-recover its costs in RY2025 and RY2026 this would clearly be disadvantageous to consumers as Aurora would be overcompensated in those years. This is clearly contrary to section 52A(1)(d). But, equally, there is a risk that Aurora could under-recover its costs in RY2025 and RY2026. This also represents a risk for both Aurora and consumers. If Aurora is prevented or unable to recover its expenditure, Aurora will not maintain financial stability. This weakens incentives to invest in network assets, contrary to section 52A(1)(a). Cost recovery is a particularly acute issue for Aurora given the funding constraints it is currently operating under.

190. Accordingly, Aurora considers that in these circumstances a three-year CPP period is for the long-term benefit of consumers and better meets the Part 4 purpose, and the Commission should therefore exercise its discretion to grant a three-year CPP period.[175]

B10 In summary, Aurora's arguments that a three-year CPP period better meets the Part 4 purpose are that:

B10.1 historic under-investment in the network has resulted in a deterioration of network assets that now requires remediation – the current focus is on investing to reduce the level of risk on the network (para 189.1);

B10.2 Aurora is working to improve asset data and asset management maturity to support network planning and expenditure forecasting – Aurora is starting from a comparatively low base (para 189.2);

[175] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), p. 42 and 43, IM requirements: Part 5, subpart 4, 4.1 Duration of regulatory period, para 187 to 190.

B10.3 accurately forecasting medium to long-term future expenditure is particularly challenging for Aurora – the lack of asset management maturity and the step-change in investment presents a challenge for forecasting expenditure over a five-year period (para 189.3);

B10.4 Aurora has a high degree of confidence in forecasts for the first three years of the Aurora CPP period (year one to year three), but does not have the same level of confidence in forecasts beyond year three (para 189.4); and

B10.5 Aurora considers that a five-year CPP period would pose a risk of over-recovery or under-recovery in year four and year five, with over-recovery disadvantaging consumers and under-recovery disadvantaging Aurora and consumers. Under the latter scenario, Aurora may not maintain financial stability, and this weakens incentives to invest in network assets (para 189.5).

B11 As noted above, the default term for a CPP is five years, section 53W(2) of the Act allows us to set a CPP period for Aurora that is shorter than five years (and not less than three years) if that shorter term better meets the Part 4 purpose in section 52A of the Act, ie, the shorter term better promotes outcomes that are consistent with outcomes produced in competitive markets such that Aurora:

B11.1 has better incentives to innovate and to invest (section 52A(1)(a));

B11.2 has better incentives to improve efficiency and provide services at a quality that reflects consumer demands (section 52A(1)(b));

B11.3 better shares the benefits of efficiency gains, including through lower prices (section 52A(1)(c)); and

B11.4 is limited in its ability to extract excessive profits (section 52A(1)(d)).

B12 Although not explicitly referenced to those limbs of the Part 4 purpose in the Act, Aurora's request for a shorter CPP period appears to be most closely linked to sections 52A(1)(a) [incentive to innovate and to invest] and 52A(1)(b) (incentive to improve efficiency).

Approach described in our Issues Paper Package

B13 In our July 2020 Issues Paper package, we described the factors that we proposed to weigh-up in making our decision on the length of the CPP period. These factors were as follows:[176]

> 2.5.1 The conceptual benefits of a shorter period versus a longer period—there are advantages and disadvantages of each approach. A shorter CPP period reduces the risk of Aurora not having the sufficient funding where issues are identified mid-period but unable to be taken account of in the CPP revenue allowances until the next period. However, it would also require Aurora to begin work on its investment application earlier, which could place strain on resources available to undertake the work required to fix its network. A longer CPP provides certainty of prices and quality for both consumers and Aurora for a longer period of time.
>
> 2.5.2 The quality of Aurora's forecasts that underpin its CPP—while Aurora faces challenges in its asset condition data and systems, the Verifier had confidence in Aurora's forecasting approaches and did not think years four and five of Aurora's data significantly greater degree of uncertainty than the first three years of the proposal.
>
> 2.5.3 The type of regulation that would apply to Aurora in years four and five if it were not on a CPP—if Aurora's CPP expires after three years it may potentially revert back to the default price-quality path that did not suit its needs previously. Aurora has signalled its intention to apply for a second CPP. However, the Commerce Act appears not to allow them to do this until 2026, so if we determined a three-year CPP there would be a gap.
>
> 2.5.4 Whether a five-year CPP can be adapted to address the uncertainty Aurora faces—Aurora's concern is that the better data that becomes available during the CPP period may identify further investments that are required which its CPP does not allow for. Our input methodologies can allow for additional expenditure mid-period.2 However, these methodologies have specific triggers which may or may not apply to Aurora's circumstances. We are considering whether any adjustments to the methodologies are required and are appropriate. To make adjustments we would do so by varying the input methodologies that apply to Aurora with Aurora's agreement. We would consult on any input methodologies variations as part of our draft decision.

[176] Commerce Commission "Have your say on Aurora Energy's proposal to change its prices and quality standards to fund major network investment, discussion of key issues and questions for consumers and stakeholders" (30 July 2020), p. 9.

Responses in stakeholder submissions and cross submissions on our Issues Paper package

B14 The issue of the term of Aurora's CPP period was touched on in approximately 20% of the submissions received on our Issues Paper package. The responses were mixed. Slightly more submitters that addressed this issue supported a five-year CPP period than a three-year CPP period. However, there was a clear preference for a longer CPP period than that proposed by Aurora amongst those submitters that discussed this issue more fully.

B15 We received verbal comments from members of Aurora's CAP group who recently spoke with us. Their view was unanimously in favour of a five-year period, based on a desire to see continuity of Aurora's renewal programme over a longer period and a sense of greater predictability of outcomes from that longer period.

B16 The following are excerpts from a selection of submissions on our Issues Paper package:

B16.1 Queenstown Lakes District Council (QLDC):

> QLDC recommends that:
>
> 5.1 Aurora increases its Customised Price Path (CPP) from a three year, to a five-year plan.
>
> 5.1.1 While it is understood that Aurora may be challenged by lack of data for years four and five, on balance QLDC seek a five-year CPP. There is a known 'true' investment cost that does not deliver a complete picture to our communities if the plan is confined to three years. The district's communities deserve to understand the price rises more fully.
>
> 5.1.2 The challenge will remain beyond years one to three. A longer range CPP gives certainty to any investment decisions e.g. insulation, efficiency or self-generation (solar). Given the relatively long payback on some of these investments, consumers need to be able to invest with confidence.

B16.2 Major Electricity Users' Group (MEUG):

> **Length of the investment period**
>
> 6. MEUG is wary of agreeing to a 3-year CPP as it could in effect bind the Commission (and hence consumers) into having to agree a follow-on 5-year CPP. We agree a longer CPP period has a tail with greater uncertainty and that creates challenges.

7. However, we are not sure Aurora would have sufficient time to gather new information and resources to apply for a new 5-year CPP starting 1st April 2024 following an initial 3-year CPP starting 1st April 2021. For this to occur Aurora would have to apply for a CPP around mid-2023 after first starting consultation with interested parties end of 2022. The information and preparatory work before that date would probably start no later than mid-2022 meaning only around 15 months of new data from 1st April 2021 would be available. It is debateable if the additional 15 months data would materially improve, relative to the current application, Aurora's understanding of the price-quality preferences of its customers and the capex and opex plans for the years starting 1st April 2024 and 2025.

8. If Aurora could demonstrate that it would by mid-2022 have new material to consult on for a further 5-year CPP then MEUG agrees an initial 3-year CPP may be worthwhile. However, as explained later in paragraph [14], Aurora's intention not to consult on new regional pricing until 2023 reinforces our view no material new information and the important price-quality trade-off perspectives of consumers will be available by mid-2022.[177]

14. While the regime framework is a problem and needs to be fixed by the Commission, MEUG is disappointed that Aurora did not take leadership by committing to improving pricing signals early on to enable more granular price-quality information for consumers in the future. The key issues paper notes [p5] "… Aurora has signalled it intends to review its regional pricing and consult with its customers in 2023." That date would be after an application for a further 5-year CPP could be formulated and consulted on if the Commission agrees an initial 3-year CPP.[178]

B16.3 Pioneer Energy:

Length of investment period

We note the Commission's concerns about Aurora's two-stage CPP applications. From Pioneer's perspective, we support a process that ensures efficient and timely investment that takes into account quality information about assets and the dynamic of changes in consumer demand and technology over time. This could mean that expenditure that has been approved is no longer required and consumers face lower charges / are compensated for the difference between forecasts and reality.[179]

It would also ease the likely pressure on securing the necessary skilled labour force to undertake this work. The industry already suffers from a tight labour market and any excess pressure will increase labour costs across the sector.[180]

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[177] MEUG "Submission on Aurora Energy's CPP Issues paper" (20 August 2020), p.2, para 6 to 8.

[178] MEUG "Submission on Aurora Energy's CPP Issues paper" (20 August 2020), p.3, para 14.

[179] Pioneer Energy "Submission on Aurora Energy's CPP Issues paper" (20 August 2020), p.2.

[180] Southern Generation Limited Partnership "Submission on Aurora Energy's CPP Issues paper" (20 August 2020), p. 2.

B16.4 Queenstown Chamber of Commerce:

> The Chamber communicates with local and central government to achieve effective outcomes for its members. Its' key services include the provision of current and relevant information to the membership, advocacy on behalf of the members, recognising and rewarding achievement and generally contributing to the vibrancy of the business community.[181]
>
> While not discussed in the proposal, the Commission should consider a 4-year CPP period to bring the timing into line with the default regulatory periods. This also offers a compromise of the advantages and disadvantages of a 3-year or 5-year period as described in the discussion document.182

Aurora Energy's responses to our Issues Paper Package

B17 On the issue of length of the CPP period Aurora responded to our Issues Paper package as follows:

> 17 We proposed a three-year CPP period (followed by a second five-year CPP) recognising the current maturity of the business (post separation from Delta in 2017), and in the knowledge that our elevated levels of investment will extend out at least over the next 8 years. As such, the company would be under enhanced regulatory and stakeholder scrutiny for a number of years.[183]
>
> 19 We foresaw two main risks associated with asking the Commission, at this stage, to lock-in and fix a five-year CPP, noting that these risks flow through to customers, the Commission, and the company:
>
> • Firstly, as is generally the case with other EDBs, the accuracy and granularity of investment forecasts become less certain the further out in the period the forecasts are considering. In Aurora's case, this was perceived to be a particular risk given the maturity of the business and the journey we are on to lift asset management maturity over the next few years. Our view was that meeting the Commission's rigorous expenditure objective via the verification process in the later years of a five-year CPP would be less certain and run the risk of allowances being set either too high or too low; neither case being in the long-term interests of customers nor the company.
>
> • Secondly, and again related to the current state of the company's maturity, we have concerns around the setting of quality path targets for a full five years. As part of a CPP determination, the Commission is required to set both a price and quality path for the duration of the regulatory period. Given the company's history with breaches of the quality (reliability) path, we have considerable concern and see some significant risks with locking into a fixed reliability target for a full five-year period.

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[181] NZ Chamber of Commerce Queenstown "Submission on Aurora Energy's CPP Issues paper" (27 August 2020), p. 1.

[182] NZ Chamber of Commerce Queenstown "Submission on Aurora Energy's CPP Issues paper" (27 August 2020), p. 2.

[183] Aurora Energy "Submission on Aurora Energy's Issues paper" (20 August 2020), p. 3, para 17

> Over the past few years, we have made considerable progress in developing our understanding of the drivers of network reliability but despite this, the maturity of the company's quality modelling, particularly in the context of the later years of a five-year regulatory period, would remain a major concern. Our view is that quality standards must be reasonably capable of compliance, and that it would be inappropriate to set limits that could essentially 'force' a future breach of the price-quality path. Further, given the ongoing scrutiny of the $5 million fine levied on the company for previous breaches, as well as consultation feedback, a further quality path breach resulting in a similar outcome would be detrimental to both the reputation and credibility of Aurora and the Commission.
>
> If a five-year CPP was to be determined by the Commission, some way of mitigating the quality breach risks for the company in the later years would be required. This may, in fact, be possible given the safety (as opposed to reliability) focus of the CPP investment, and it is an area we can give further thought to depending on the feedback from the Commission's consultation.[184]

B18 In response to feedback that it may have received directly, Aurora noted the following points which related to points raised in other submissions about some of the perceived benefits of a five-year CPP period:

> *A five-year CPP does not drive lower prices*
>
> 20. It is perhaps worth clarifying that were the CPP period to be extended from three to five years, this will not necessarily result in lower prices; for example, by spreading three years' investment over five years. Our recently published asset management plan signals the need for annual investment to continue broadly at current levels for the next 8 years or so, and therefore moving to a five-year CPP period would lock an additional 2 years of investment into the CPP period.
>
> 21. It is acknowledged that a five-year CPP period would provide more certainty for customers, and potentially result in lower transaction costs, were a second CPP application to be avoided.[185]

B19 From comparing arguments in its CPP application with its more recent submission on the Issues Paper package it is apparent that Aurora has introduced a new argument against a CPP with a five-year duration. That is, concern at potentially breaching the quality standards under a five-year CPP period.

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[184] Aurora Energy "Submission on Aurora Energy's Issues paper" (20 August 2020), p. 3 and 4, para 19

[185] Aurora Energy "Submission on Aurora Energy's Issues paper" (20 August 2020), p. 4, para 20 and 21

B20 Aurora's cross submission expanded on many of its previous arguments for a three-year CPP period and addressed what it perceived to be a misunderstanding of some submitters who thought that a longer CPP period would suppress prices:[186]

> *Impact of five-year versus three-year regulatory period*
>
> 73 Some submitters have suggested that a five-year CPP regulatory period would deliver superior affordability outcomes than the three-year period that we have sought in our proposal.
>
> 74 We are concerned that those submitters have not understood the rationale for seeking a three-year regulatory period, which is to manage the risk of expenditure being inappropriately disallowed or approved, because of uncertainty in our later forecasts. That risk falls asymmetrically upon consumers – approval of greater expenditure than necessary results in higher prices, while disallowed expenditure that is actually needed means that network improvements are deferred as we curtail our work programmes to match the allowed expenditure.
>
> 75 It appears that submitters consider that a five-year regulatory period will suppress prices, as three years of work will be spread over five years. This is not the case, as elevated levels of investment will be required for some years beyond a five-year CPP period, before falling to a new steady state. A five-year regulatory period may allow better smoothing of the revenue path, but it will not necessarily result in material reductions to forecast charges.

Our assessment of a three-year vs five-year period for Aurora's CPP

B21 We discuss below the key elements that are relevant for assessing whether a three-year CPP period for Aurora better meets the long-term benefits of consumers and the purpose of Part 4, than a five-year CPP period.

Forecasting uncertainty

B22 Aurora's forecasting uncertainty is likely to be more related to its capital investment workstream than to the operational investment workstream. This is because capex and opex are forecasted using different methodologies. Capex is forecasted based on an assessment of the current asset condition, whereas opex is forecasted using the base step and trend methodology.

B23 Aurora has mainly based its three-year CPP period argument on the basis that its lack of asset management maturity presents a challenge for forecasting expenditure over a five-year period. However, in many of its asset renewals programmes, Aurora has demonstrated that it understands the safety, asset health and asset end-of-life issues that underpin the forecast asset replacements.

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[186] Aurora Energy "Feedback on Consumer Submissions to the CPP Issues Paper" (18 September 2020), p. 12, para 73 to 75

B24 Despite this, Aurora does not have suitable asset condition data for many of its asset classes. This is reflected in its capital expenditure proposal where asset condition data is lacking for the following asset classes: crossarms, HV and LV conductors, LV enclosures, indoor switchboards and outdoor circuit breakers.

B25 As a result, Aurora has forecast its replacement volumes (after dealing with the known safety and type issues) using a replacement capital expenditure (repex) approach. Repex modelling is a standard industry expenditure forecasting approach that uses asset age and a probability distribution curve of asset failure to predict asset replacement volumes. It is applicable in a situation where the fleet asset age and expected asset life information is available, but asset conditions are not known well.

B26 As we noted in our Issues Paper package, the Verifier had confidence in Aurora's forecasting approach. The Verifier informed us when we had a two-day debrief workshop on the final verification report that the level of uncertainty for years four and five is not considered materially different for Aurora in comparison with the uncertainty that exists in the last two years of a five-year DPP period for any other electricity lines business.

B27 Although the Verifier considered that Aurora's repex forecast models were reasonable, it noted that the models tend to over-forecast the investment need. For example, in its review of the low-voltage conductor asset class the Verifier concluded that:[187]

> The asset health assessment used by Aurora Energy to forecast asset replacements has not factored in failure consequences (i.e. criticality) to determine risk nor to establish an optimum level of forecast volumes. Instead, Aurora Energy intends to assess criticality once forecast expenditure is set and only then to prioritise the delivery of work.
>
> We consider that this methodology does not yield an optimum forecast and some replacement projects may proceed within the CPP or review periods that could have been deferred beyond the period if risk was factored in. However, at present there appears to be insufficient information available to Aurora Energy to refine its forecasts to do this. Given this, the volumes forecast are not unreasonable based on the circumstances and the overall safety risk associated with LV conductors.

[187] Farrier Swier Consulting Pty Ltd and GHD Pty Ltd "Verification report - Aurora Energy CPP application" (8 June 2020), Appendix D.6.7 p. 371.

B28 Over-forecasting would mean that Aurora could over-recover revenue. However, the revenue effects of any over-recovery of revenue from us allowing too much capital expenditure in year 4 and year 5 of the CPP period would be moderated because the return on, and return of, capital on this capital expenditure will be spread over the long life of the assets.

B29 The forecasting uncertainty would only manifest in prices through forecast depreciation and forecast return on the RAB value for the impacted years, and due to the relatively long lives of these assets, the portion of the forecast spend that comes through into revenue in that way would be a low proportion of the forecast expenditure.

B30 Linking this back to the Part 4 purpose, this means that the purpose under section 52A(1)(d) [limitation on Aurora to extract excessive profits] would not be undermined by a five-year CPP period.

We have proposed an expenditure uncertainty mechanism to deal with demand uncertainty

B31 We have proposed IM variations to introduce an uncertainty mechanism that, if agreed with Aurora, would enable us to defer some of Aurora's expenditure. These IM variations address demand uncertainty affecting growth and security, and consumer connection capital expenditure.

B32 The uncertainty mechanism would enable Aurora to seek approval for projects later in the CPP period when demand becomes more certain. The flexibility provided by the uncertainty mechanism would reduce the potential for over-recovery or under-recovery relative to a counterfactual where all of the investment is approved at the start of the CPP period.

Regulatory period

B33 Aurora has indicated that it intends to apply for a second CPP (CPP2) to follow its first CPP (CPP1). However, Aurora may not apply in DPP3, which runs from 2020-2025, for CPP2. It must wait until DPP4 to apply. This means that it must transition back to DPP3.

B34 Assuming a five-year CPP period for CPP2, a three-year CPP period for CPP1 would lead to a "3+1+1+5" pattern of regulatory periods. Specifically, this would entail:

B34.1 three-year CPP period for CPP1;

B34.2 year five of DPP3, preceded by consultation on the transition step from CPP1;

B34.3 year one of DPP4, preceded by the usual consultation for a DPP reset; and

B34.4 five-year CPP period (or less) of CPP2, preceded by consultation on the setting of the CPP.

B35 If Aurora did not apply for CPP2, it would give rise to a 3+1+5 pattern of regulatory periods:

B35.1 three-year CPP period for CPP1;

B35.2 year five of DPP3, preceded by consultation on the transition step from CPP1; and

B35.3 DPP4, preceded by the consultation on a DPP reset.

B36 We considered whether there would be benefits in adopting a four-year CPP period, but we concluded this would only mildly simplify things. It would still likely result in a 4+1+5 pattern of regulatory periods.

B37 We consider these relatively complex combinations of years within regulatory periods, combined with anticipated one-year regulatory periods, raise a reason under section 52A for preferring a five-year CPP period for CPP1. Under the Part 4 regime, price paths are set and then left alone for four to five years under a DPP and three to five years under a CPP to provide certainty for a number of years in advance, conducive to incentives for investment and efficiency (sections 52A(1)(a) and (b)). The potential combinations noted above would be at odds with that approach.

B38 Furthermore, the patterns of regulatory periods detailed above would impose extra costs on us and Aurora. There is also a risk that the level of stakeholder engagement would drop away under such regulatory patterns because of "consultation fatigue". If this occurred, we may find it more difficult to gauge whether our decisions reflect Aurora's customers' demands.

A five-year CPP should not impact on Aurora's planned update of its pricing methodology

B39 There is a practical question about whether a five-year CPP period would have any adverse impact on Aurora's plan to restructure its pricing methodology, which was set out in its CPP application.[188] Aurora is aiming to be in a position to consult with its customers and stakeholders on its pricing methodology options in 2023.

[188] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), p. 216, para 826 and 827

B40 Our view is that there does not appear to be any adverse impact of extending the proposed three-year CPP period by a further two years. It may in fact end up being beneficial in providing Aurora with more time in CPP1 to socialise its new distribution pricing before CPP2 (or the step back to DPP4, whichever is applicable).

Quality

B41 The quality standards that we have proposed are more relaxed than the current standards applying to Aurora under DPP3, better reflecting the realistically achievable performance of Aurora over a five-year CPP period. In our view, Aurora is reasonably capable of ensuring compliance with these standards in year four and year five.

B42 A five-year CPP period provides greater certainty against further deterioration in the reliability of Aurora's network which is an outcome that Aurora's consumers strongly value.

A five-year CPP period should not impact safety

B43 Aurora's CPP application did not raise increased safety risks from a five-year CPP period as an argument for a three-year CPP period. However, we considered it relevant for us to assess whether a five-year CPP period may raise greater safety risks in year four and year five.

B44 Aurora has stated that the first three years of its CPP period are focused on investing in assets to mitigate safety risks. This is not the only driver, but it is the key driver that comes through in the assessment of Aurora's proposed capital expenditure portfolio and, to an extent, the operational expenditure portfolio (eg vegetation management expenditure).

B45 The network safety issue is backed up by the 2018 WSP report. WSP assessed most of Aurora’s primary and secondary asset classes and through sampling and modelling techniques determined the likely condition of Aurora's asset fleet. Through this process, WSP identified that many of Aurora's assets posed a safety risk.

B46 Since the WSP report was published, Aurora has been systematically renewing or replacing the assets with safety exposures. For some asset classes with known safety issues that will require a coordinated approach, such as Aurora’s zone substation protection, Aurora has plans to have these replaced before or during the three-year period.

B47 Therefore, given the work that Aurora has undertaken to date, and will undertake in the next three years to address safety, our assessment is that the possibility that a new asset related safety issue would present in year four or year five that has not been addressed in the CPP application, is low.

Our overall assessment of a three-year versus five-year CPP period for Aurora

B48 In summary, we consider the risk and effect of revenue over-recovery or under-recovery under a five-year CPP period to be small. Our view is that the benefits from the price and quality certainty associated with a five-year CPP are not outweighed by the risk and effect of revenue over-recovery or under-recovery.

B49 We acknowledge Aurora's forecasting for year four and year five of a five-year CPP period has a greater potential for annual revenue uncertainty than otherwise could be possible if better asset condition data was available. However, the forecasting approach taken is reasonable, and the potential bias towards over-forecasting is not considered overly material, because the revenue impacts, and thus consumer price impacts, will be muted due to the long recovery time for capital expenditure.

B50 Furthermore, we have proposed IM variations to introduce uncertainty mechanisms that, if agreed with Aurora, would enable us to defer some expenditure decisions now. These IM variations set out in Attachment J address demand uncertainty related to growth and security and consumer connection capital expenditure.[189]

[189] Attachment J, Reconsideration mechanisms, para J23-J38.

Attachment C Quality standards and incentives

Introduction to this attachment

C1 This attachment sets out our decisions on quality standards that Aurora must comply with and quality incentives that Aurora will face over the CPP period.

Summary of our draft decisions

C2 Our quality standards and incentives influence the quality of services that Aurora provides its consumers, particularly the reliability of electricity supply—power outages are harmful to households and businesses, and can prevent adequate heating and lost business revenue and productivity.

C3 Aurora requested we relax the quality standards it is currently subject to under its DPP to better reflect the state of its network. In its application, it forecast longer and more frequent unplanned outages compared to the 2016-2020 period and also expected planned outages to increase so that it can undertake network replacement.

C4 Feedback we received from consumers suggests consumers did not necessarily want to pay more for improved reliability, but they also did not accept it should be allowed to deteriorate further.

C5 Our draft view is that Aurora's plans to fund major network investment should enable it to perform better than it has proposed. The draft unplanned outage targets we have set for Aurora broadly reflects Aurora's recent performance over the last five years, but are worse than its performance prior to 2016. Aurora will face financial penalties and rewards when its performance deviates from this target.

C6 Overall, this would mean that Aurora’s customers could expect the reliability and quality of their electricity supply to stabilise at today’s levels, before gradually improving over time.

C7 Above the outage targets, we have set draft unplanned outage standards. If Aurora breaches this standard, it will face enforcement action from us, including possibility of court prosecution.

C8 We expect Aurora will have considerable headroom to work within our draft unplanned standards. Aurora's historical performance, including recent deterioration, would not breach our draft standards. We consider such headroom appropriate due to the greater uncertainty as to the reasonably achievable levels of quality as Aurora improves its network resilience and asset data management.

C9 Consistent with Aurora's proposal, our draft decision is to maintain the planned outage standards that Aurora currently faces, but to set more lenient targets to reflect the scale of work required to be undertaken on its network. Our draft decision to apply the incentive scheme to Aurora's planned outages would provide Aurora with a financial incentive to improve its notification of outages and undertake work efficiently within a set notification window. It would also encourage Aurora to minimise planned outage cancellations at short notice.

C10 Our draft policy decision is to develop other measures, that should influence quality outcomes that Aurora's consumers value:

C10.1 We are proposing to require Aurora to provide and publish information that will inform consumers of its performance and enable us to monitor its performance. This would include information about causes of its outages, its performance against its voluntary charter commitments to minimum service levels and associated compensation payments when it does not meet those commitments, and performance against its commitments to improve notification of outages.

C10.2 We are encouraged that Aurora has committed to retaining and improving its charter and compensation scheme. Aurora has told us it may consult its consumers on proposed changes to its charter and compensation policies, though we lack clarity on the speed and substance of these changes. We are proposing to require Aurora to publicly report on how it has consulted with consumers on changes to its charter commitments and its performance against those commitments.

Structure of this attachment

C11 This attachment discusses:

C11.1 Our approach to setting quality standards and incentives

C11.2 Draft decisions on unplanned outage standards and incentives

C11.3 Draft decisions on planned outage standards and incentives

C11.4 Service level commitments and compensation

Our approach to setting quality standards and incentives

C12 We set quality standards and incentives to influence the quality of services that Aurora provides its consumers, particularly the reliability of electricity supply as power outages are an inconvenience to consumers. Our standards and incentives seek to influence quality outcomes that Aurora's consumers value, including Aurora providing:

C12.1 reliable electricity supply (minimal outages) that does not materially deteriorate from consumers' recent experience. Consumer feedback suggests most consumers do not want to pay more for reliability improvements or pay less and in exchange experience more outages.[190]

C12.2 efficient completion of planned work that is in consumers' interests – such as necessary improvements in network safety and reliability improvements where it is cost effective;

C12.3 efficient management and restoration of unplanned outages; and

C12.4 effective communication about outages and about the quality of its network so that customers can make informed decisions, for example, whether to invest in mobile generation.

C13 For the DPP3 we separated planned and unplanned outages for the purposes of quality standards and for the revenue-linked quality incentive scheme. At the time, we explained the reasons for this as follows.

> Separation eliminates the ability of distributors to avoid contravening their unplanned reliability standard by deferring planned work when it forecasts that it is otherwise likely to contravene. Separation better promotes the purpose of Part 4 because it does not create an incentive against investment at the most appropriate and efficient time and better reveals deterioration of network performance to be assessed against the quality standards.[191]

C14 We consider that separation is also appropriate for Aurora's CPP, and is what Aurora has applied for, for the same reasons as we explained for DPP3. This is particularly important for Aurora's CPP because of the large focus on substantial network investment, which will require planned outages.

Our statutory powers

C15 The Act requires us to set quality standards as part of Aurora's CPP and allows us to set quality incentives.[192] Aurora could face court penalties if it does not meet quality standards.[193]

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[190] UMR Quantitative Research Report: Households and Businesses (on behalf of Aurora Energy), February 2020.

[191] Commerce Commission "Default price-quality paths for electricity distribution businesses from 1 April 2020 – Final decision – Reasons paper" (27 November 2019) para 7.30.

[192] Section 53M(1) and section 53M(2) of the Act.

[193] Remedies we may seek in Court against a distributor for contravening a quality standard include pecuniary penalties or an order that compensation be paid to parties that experienced loss or damage (Part 6 of the Act refers). We may also bring secondary liability proceedings against directors, shareholders, or other entities associated with the business if their actions contributed to, or they were otherwise closely involved in, the quality standard contraventions.

C16 The Act provides us with a broad discretion to set quality standards and place incentives on Aurora to achieve those standards under a CPP:[194]

> (2) A price-quality path may include incentives for an individual supplier to maintain or improve its quality of supply, and those incentives may include (without limitation) any of the following:
>
> (a) penalties by way of a reduction in the supplier's maximum prices or revenues based on whether, or by what amount, the supplier fails to meet the required quality standards:
>
> (b) rewards by way of an increase in the supplier's maximum prices or revenue based on whether, or by what amount, the supplier meets or exceeds the required quality standards:
>
> (c) consumer compensation schemes that set minimum standards of performance and require the supplier to pay prescribed amounts of compensation to consumers if it fails to meet those standards:
>
> (d) reporting requirements, including special reporting requirements in asset management plans, if the supplier fails to meet the quality standards.
>
> (3) Quality standards may be prescribed in any way the Commission considers appropriate (such as targets, bands, or formulae) and may include (without limitation)—
>
> (a) responsiveness to consumers; and
>
> (b) in relation to electricity lines services, reliability of supply, reduction in energy losses, and voltage stability or other technical requirements.

Evaluating Aurora's proposed quality standards and incentives

C17 Aurora currently faces quality standards and quality incentives under the default price-quality path. We must decide whether and how to amend these as part of setting Aurora's CPP determination.

C18 Our starting point for setting Aurora's quality standards and incentives is evaluating Aurora's CPP proposal. Aurora's proposed quality standards and incentives are summarised below.

Summary of Aurora's proposed quality standards and incentives

C19 Aurora's proposed $609 million expenditure proposal (over five years) prioritises improving asset health to deliver safety improvements, rather than improving reliability.

C20 Aurora suggested slight reliability improvements may arise as a by-product of safety related investments after 2024. However, it forecast considerably worse reliability over the CPP period (2022-2026) compared to recent years. Specifically, Aurora forecast that in aggregate, consumers can expect to experience outages that are 19% longer and 10% more frequent than recent years.[195]

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[194] Section 53M(2) and (3) of the Act.

[195] This compares Aurora's average forecast SAIDI and SAIFI over the 2022-2026 period to the average SAIDI and SAIFI on its network over the most recent five-year period (2016-2020).

C21 Aurora proposed retaining the broad structure of the quality standards and incentives it currently faces under DPP3. This includes:

C21.1 standards that set the maximum number and duration of planned and unplanned outages experienced by consumers on its network in aggregate. These are measured by 'SAIFI' and 'SAIDI' respectively. SAIDI refers to the average total duration of interrupted power supply in a year per customer in minutes. SAIFI refers to the average number of interruptions to power supply per customer in a year.[196]

C21.2 an extreme event standard that obliges Aurora to minimise and respond appropriately to significantly disruptive outages that were not caused by adverse weather or other external impacts.

C21.3 a revenue-linked quality incentive scheme that allows Aurora to recover additional revenue from consumers if it outperforms a specified duration target of unplanned power outages and recover less revenue from consumers if it fails to meet this target. The incentive scheme is also applied to planned power outages but with a lower incentive rate (ie, Aurora faces a higher financial penalty from an additional unplanned outage minute than it faces from an additional planned outage minute).

C22 Aurora proposed changes to the values within the quality standards and incentives it currently faces. Aurora says this is to better reflect its circumstances, avoid further quality breaches and better reflect its customers' preferences and willingness to pay for reliability.[197] At a high-level, Aurora's CPP proposal seeks:

C22.1 more lenient unplanned SAIDI and SAIFI standards allowing it to have more frequent and longer unplanned outages before contravening the unplanned standard

C22.2 more lenient (higher) outage duration targets under the incentive schemes applying to planned and unplanned outages so that, compared to current settings, Aurora is less likely to accrue financial penalties and more likely to accrue financial rewards.[198]

C23 Aurora did not propose changes to the planned outage standard it currently faces and did not propose any new quality standards or incentives.

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[196] Both SAIDI and SAIFI exclude interruptions originating on the low voltage portion of the network.

[197] For example, Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020) at para 35, para 103, para 928, para 935.

[198] Changes to the revenue-linked incentive scheme were a feature of Aurora's CPP proposal. However, in response to our Issues paper package, Aurora suggested removing the revenue-linked incentive scheme. We consider this further in this attachment.

C24 Following Aurora's CPP proposal which sought to retain the broad structure of the quality incentive scheme for unplanned outages, Aurora submitted its revised view that the outage limits provides sufficient reliability performance protection for customers and the quality incentive scheme is not appropriate for its CPP as a submission on our Issues Paper package. Specifically, Aurora noted that:[199]

> applying the incentive scheme to unplanned reliability] could be seen as inconsistent with customers' short-term preferences to reduce expenditure where possible. Furthermore, given the uncertainty in forecasting reliability at the present time, there is a high likelihood that any incentive or penalty would include a component that was directly related to the accuracy band around forecasting, rather than underlying improvements which would be mainly as a consequence of safety-related asset renewals.

C25 Our assessment of Aurora's CPP proposal and its submission on our Issues Paper package, including its proposed quality standards and incentives, must apply the evaluation criteria prescribed in our IMs. These criteria are described in Attachment A.

C26 Our evaluation of Aurora's proposed quality standards and incentives discussed in this attachment focusses on:

- C26.1 the extent to which Aurora's proposed changes to existing quality standards and incentives:
  - C26.1.1 promotes the long-term benefit of consumers consistent with the purpose of Part 4 of the Act;[200]
  - C26.1.2 better reflects its realistically achievable performance over the CPP period, taking account of either or both: statistical analysis of its past SAIDI and SAIFI performance, and the level of its proposed investment;[201]
  - C26.1.3 has been consulted on with Aurora's consumers and is supported by consumers, where relevant;[202] and
- C26.2 whether data, analysis, and assumptions underpinning Aurora's proposed quality standards and incentives are fit for purpose, including sufficiently accurate, reliable and reasonable.[203]

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[199] Aurora Energy "Submission in response to the Commission's CPP Issues Paper" (20 August 2020), p. 16.

[200] Clause 5.2.1(b) of our IMs.

[201] Clause 5.2.1(e) of our IMs.

[202] Clause 5.2.1(f) of our IMs.

[203] Clause 5.2.1(c) of our IMs.

C27 When we apply this evaluation criteria, we have regard to relevant views reached by the Verifier.

C28 The next sections set out our draft decisions to include in Aurora's CPP:

C28.1 unplanned outage standards and incentives;

C28.2 planned outage standards and incentives; and

C28.3 reporting measures to influence the service standards and associated compensation that Aurora commits to providing its consumers.

Draft decisions on unplanned outage standards and incentives

C29 Our draft decision is to set unplanned outage standards that are more lenient than the current standards Aurora faces under DPP3, but are not as lenient as Aurora's proposed standards. This is shown in Table C1.

Table C1 Unplanned quality standard limits (annual)

	SAIDI (minutes)	SAIFI (interruptions)
Current standards (DPP3)	81.89	1.47
Our draft decision	**124.94**	**2.07**
Aurora's proposal[204]	142.01	2.26

C30 Our draft unplanned SAIDI and SAIFI limits in Table C1 represent the maximum number and frequency of unplanned outages that Aurora's customers could experience on average before we may apply to the court to impose pecuniary penalties on Aurora for contravening the standard.

C31 These standards, which measure both the duration of outages and their frequency, recognise that outages harm Aurora's customers in a variety of ways. For businesses, power outages can result in staff downtime and a loss of revenue, and for households, power outages can result in loss of perishable items, heating, hot water, and revenue for people who work from home.

[204] Aurora's submitted proposal included higher proposed SAIDI and SAIFI quality standard limits than the figures in this table denoted "Aurora's proposal", which correct for an error that Aurora made in the way it excluded the full impact of major interruption events, including severe weather events. This is a process called "normalisation". We explain the impact of this error in the next section. We have also corrected for a minor error in Aurora's unplanned model outputs.

C32 We agree with Aurora and the Verifier that the DPP3 standards are too low and do not reflect Aurora's realistically achievable performance. However, our draft decision is to not accept Aurora's proposed standards and instead impose standards that allow for fewer outages and fewer outage minutes on Aurora's network. This is consistent with the Verifier's opinion that Aurora's proposed standards appear overstated based on the modelling assessed and the information provided.[205]

C33 We are confident Aurora can work within our draft standards. Aurora's historical reliability performance (including its recent deterioration in performance) is a sufficient margin below, and would not have breached our draft standards. We consider it unlikely that Aurora's performance should materially worsen from this recent experience.

C34 The quality standards we propose in Table C1 includes built in tolerances before they are contravened. These tolerances are based on a 'buffer' between:

C34.1 the SAIDI and SAIFI benchmarks ('targets') that we expect Aurora to achieve on average during the CPP; and

C34.2 the standards that Aurora is expected to meet (ie, the proposed 'limits' in Table C1).

C35 Table C2 below summarises our draft decision on Aurora's SAIDI and SAIFI targets and limits, and the difference between the targets and the limits, which is shown as a notional 'buffer'. This notional buffer represents the degree of tolerance we have provided before Aurora's reliability performance is considered to contravene the standard.

Table C2 Unplanned quality targets and limits over the 2022-2026 period (annual)

	SAIDI (Minutes)			SAIFI (Interruptions)		
	Target	**Buffer**	**Limit**	**Target**	**Buffer**	**Limit**
Current standard (DPP3)	63.44	18.45	81.89	1.17	0.30	1.47
Our draft decision	**88.08**	**36.86**	**124.94**	**1.57**	**0.50**	**2.07**
Aurora's proposal	110.02	31.99	142.01	1.80	0.46	2.26

C36 Table C2 shows that our draft decision is to set lower targets and limits (deviating from Aurora's proposal). However, we have included a relatively large buffer between our proposed targets and limits (deviating from DPP3) that is akin to Aurora's proposal. The size of the buffer determines the standard.

[205] Farrier Swier Consulting Pty Ltd and GHD Pty Ltd "Verification report - Aurora Energy CPP application" (8 June 2020), p. 38 and 438.

C37 We are not satisfied that Aurora's proposed unplanned reliability targets and limits shown in Table C2 promote the long-term benefit of consumers. In our view, Aurora's proposal does not provide sufficient deterrence against further deterioration of its network or place sufficient incentives on Aurora to provide services at a quality that reflects consumer demands.

C38 We accept that the current DPP3 targets and limits Aurora faces do not reflect Aurora's realistically achievable performance. We also accept that many consumers have said they are not willing to pay more for improved reliability. However, this does not tell us much about whether consumers support Aurora's proposed reliability outcomes, given it is proposing significantly worse reliability at a higher cost.

C39 Aurora's reliability forecasts build in a 19% SAIDI and 10% SAIFI deterioration over the CPP period relative to the 2016-2020 period.[206] We do not consider that this level of further deterioration is acceptable, especially given the level of expenditure we are approving. In addition, Aurora has not consulted consumers on this level of deterioration; its consultation signalled consumers could expect some improvements in reliability based on earlier reliability modelling and expenditure forecasts.[207] Feedback we received from consumers suggests consumers are concerned about deteriorating reliability as well as price increases.

C40 In our view, Aurora's plans to fund major network investment should enable it to perform better than it has proposed. This position takes account of Aurora's historical performance, its investment plans, consumer feedback, and our view that some of Aurora's data, analysis, and assumptions underpinning its proposal are not sufficiently robust. We expand on our specific reasons for adopting targets and limits at the levels we have proposed in the next sections. As such, we consider that our draft targets and standards reflect what is reasonably achievable for Aurora.

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[206] Aurora's unplanned SAIDI and SAIFI targets are 22% and 13% above its recent five-year average performance. This is because Aurora uses its maximum forecast over the period to set its targets.

[207] For example, Aurora indicated to consumers that its proposed investment would see the average duration of unplanned power cuts reduce by about 7% to 10% a year by 2024. UMR Quantitative Research Report: Households and Businesses (on behalf of Aurora Energy), February 2020 at p. 23. For example, Aurora Energy "Your Network, Your Say - Consultation document" (24 January 2020) at p. 23-25.

C41 Our draft SAIDI and SAIFI targets are similar to Aurora's recent experience over the last five years, at around 2% better than its average 2016-2020 experience (rather than Aurora's proposed 19% and 10% forecast deterioration). We consider this reflect a realistic benchmark that provides Aurora with the opportunity—but not a guarantee—to earn a 'normal return' on efficient investment. While the SAIFI target is notional, the SAIDI target forms part of the revenue-linked incentive scheme. Aurora faces financial penalties and rewards when its performance deviates from the SAIDI target.

C42 In our view, our draft decision on unplanned reliability standard limits includes considerable headroom for Aurora to work within. We consider the relatively large buffer (and resulting standard) is appropriate and reflects the greater range of SAIDI and SAIFI outcomes that could be expected from Aurora over coming years given its relatively low understanding of the health of its network assets, some of which are failing. We expect Aurora's planned improvements in asset data management to support effective decision making in its network investment and over time enable Aurora to revert back to a long-term sustainable steady-state. We agree with Aurora that the exact timing of this is uncertain.[208] When this happens, DPP3 principles (including how the buffer is set) will be more applicable to Aurora.

C43 We have complemented the draft reliability standards with other measures that we expect to incentivise Aurora to provide services at a quality reflective of consumer demands. This includes financial incentives attached to outage targets that expect Aurora to maintain its recent performance, consistent with its consumers' sentiment.

C44 Separately to the CPP we are proposing whether to require Aurora to provide and publish information that would inform consumers of its performance and enable us to monitor its performance. This may include Aurora reporting on the causes of its outages each year, which it is currently required to provide if it contravenes the reliability standards. We may also require Aurora to publicly report on its performance against its voluntary charter commitments to minimum service levels and associated compensation payments when it does not meet those commitments.

[208] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020) at para 189.1.

C45 We are encouraged that Aurora has committed to retaining and improving its charter and compensation scheme.[209] We understand Aurora may consult its consumers on proposed changes to its charter and compensation policies, though we lack clarity on the speed and substance of these changes. We support Aurora publicly reporting on how it has consulted with consumers on changes to its charter commitments and associated compensation. We discuss Aurora's compensation scheme further from paragraph C121 and our preliminary views on associated reporting requirements in Attachment I.

Current DPP3 standards do not reflect Aurora's realistically achievable performance

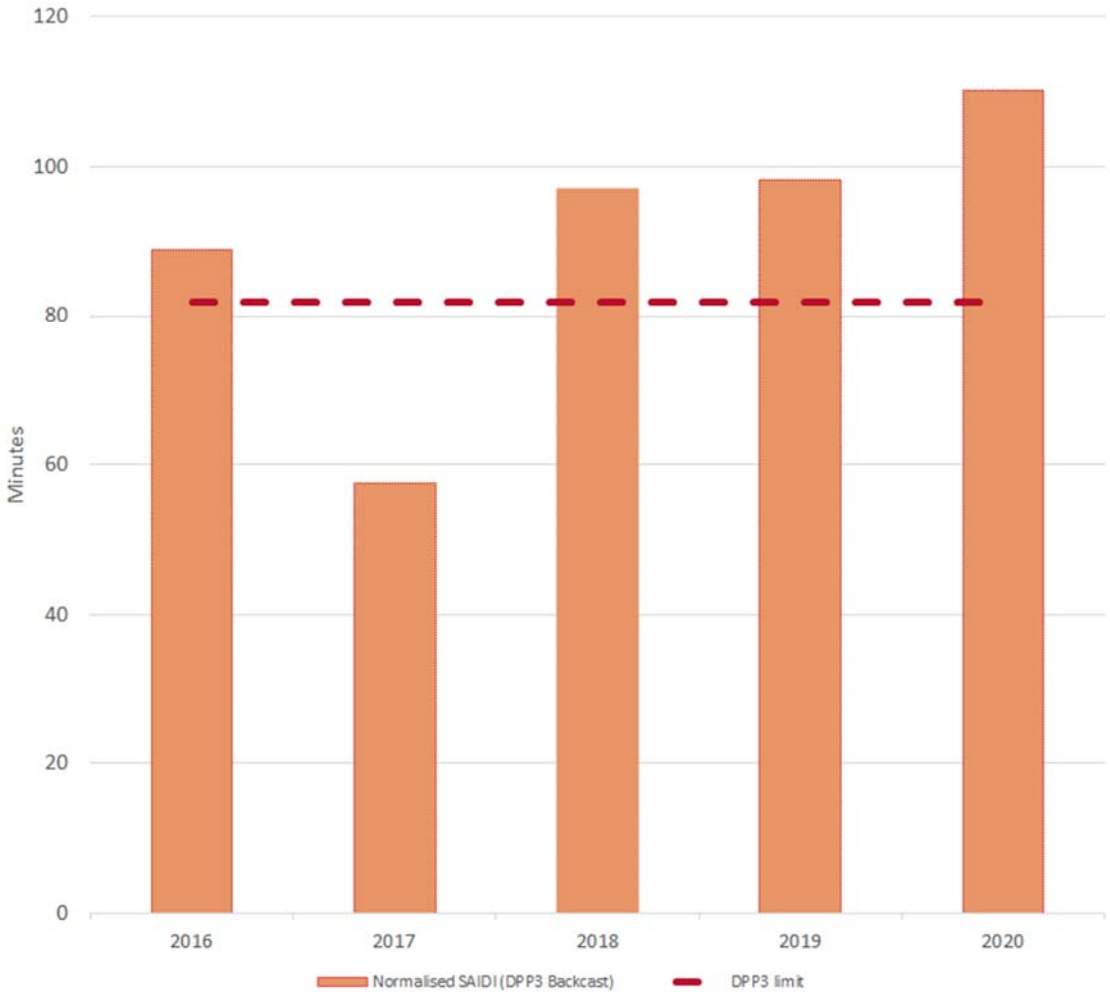
C46 Our draft decision is to accept that the current DPP3 targets and limits that Aurora faces are too stringent and do not reflect Aurora's realistically achievable performance. Aurora's recent reliability performance, and likely future performance, is worse than the DPP3 standard. The main reason for this is that the DPP3 quality standards were capped to allow for 5% worse reliability than the quality standards that Aurora previously faced (ie, the DPP2 standards).[210]

C47 Figure C1 below shows that Aurora would need to achieve a step change improvement in its reliability performance over the next few years to adhere to the DPP3 standard. We do not think this is a reasonable expectation over the CPP period.

[209] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020) at para 115.

[210] Without the cap, Aurora's DPP3 unplanned standards would be higher at 92.78 SAIDI minutes (compared to 81.89 minutes) and 1.65 SAIFI interruptions (compared to 1.47 interruptions. These uncapped values are still substantially below the standards we are proposing for Aurora's CPP. This is because an uncapped DPP3 standard would reflect the average of Aurora's historical SAIDI and SAIFI performance over the 2010 - 2019 period, over which Aurora's reliability performance has deteriorated materially.

Figure C1 Aurora's recent SAIDI performance against DPP3 standard



Our draft decision is to not accept Aurora's proposed deterioration in reliability

C48 Aurora's proposed unplanned outage targets are higher than its recent SAIDI and SAIFI performance in all historical years, with the exception of one year.[211] Its reliability forecasts build in a 19% SAIDI and 10% SAIFI deterioration over the CPP period relative to the 2016-2020 period. Our draft view is that this level of further deterioration is not acceptable, especially given the level of expenditure we are approving. For these reasons, we disagree with Aurora's statement that:[212]

> [t]he [proposed] SAIDI and SAIFI targets and limits are consistent with historical performance during DPP2 but also provide incentive to arrest the historical deteriorating reliability performance. The forecast reliability targets and limits also reflect consumer preference to ensure network safety and maintain reliability to minimise any price impacts.

[211] The only exception is Aurora's SAIFI performance in 2018, which was significantly above all other years.

[212] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020) at para 943.

C49 Figure C2 and Figure C3 show that Aurora's proposed unplanned SAIDI and SAIFI targets and limits are worse than its normalised historical experience, reflecting an expectation of more frequent and longer outages.

Figure C2 Aurora's proposed unplanned SAIDI targets and limits

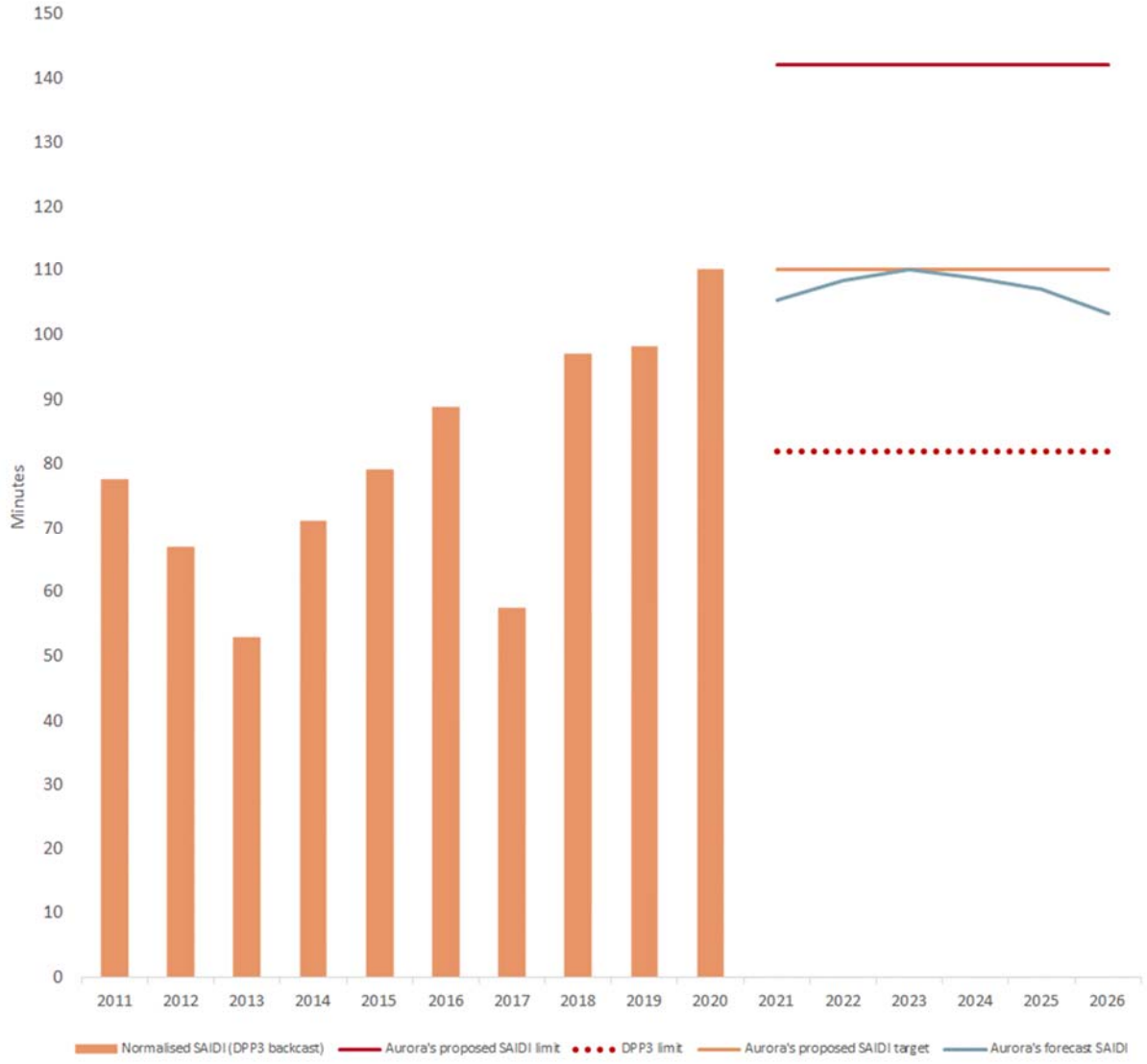
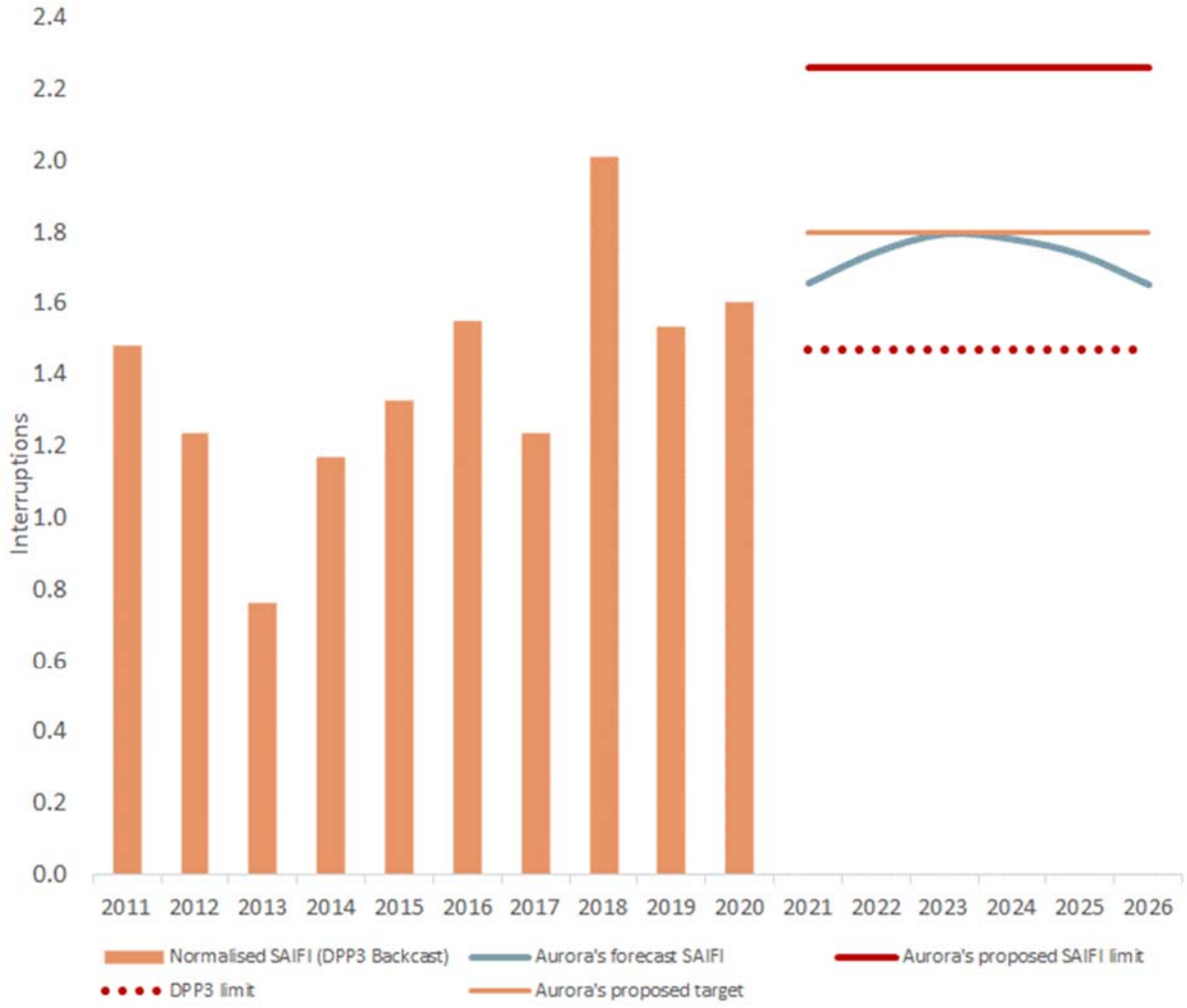


Figure C3 Aurora's proposed unplanned SAIFI targets and limits



C50 Figure C2 and Figure C3 compare Aurora's historical and forecast unplanned SAIDI and SAIFI in a like-for-like way by applying the DPP3 normalisation method consistently over time. 'Normalisation' is a process that excludes the full impact of major interruption events for assessment purposes, such as the impact of severe weather events, which can be volatile and beyond Aurora's direct control. The DPP3 normalisation methodology reduces the impact of major event significantly more than past normalisation methods (which were applied over earlier regulatory periods - DPP1 and DPP2).[213] For a meaningful comparison between forecasts and actuals, the DPP3 normalisation methodology should be applied consistently.

[213] See Attachment K of Commerce Commission "Default price-quality paths for electricity distribution businesses from 1 April 2020 – Final decision – Reasons paper" (27 November 2019).

C51 Aurora's CPP proposal did not apply the DPP3 normalisation approach consistently. In our view, it presented a less meaningful comparison, which suggested its reliability deterioration was less than the 19% SAIDI and 10% SAIFI deterioration included in Figure C2 and Figure C3.[214] This is because in its CPP submission:

C51.1 Aurora's presentation of its SAIDI and SAIFI forecasts compared to its historical experience relied on different normalisation methods (a mixture of DPP2 and DPP1 methodologies). This comparison was repeated in our Issues Paper package.[215]

C51.2 Aurora did not correctly apply the DPP3 normalisation method to its SAIDI and SAIFI forecasts.[216] Aurora later corrected for this in an updated forecast it provided for our consideration (shown in Figure C2 and Figure C3). Aurora's updated forecasts include lower unplanned targets and limits than its submitted proposal. These differences are small for SAIDI (about 2%) and more substantial for SAIFI (about 10%).[217] For simplicity, we refer to Aurora's updated forecasts as its proposal throughout this attachment.

Our draft decision to set more stringent targets and limits than Aurora's proposal

C52 Our draft decision to set Aurora's unplanned SAIDI and SAIFI targets and limits below (more stringent than) Aurora's proposal is explained from paragraph C29. We do not repeat those reasons here but set out our specific reasons for adopting the targets and limits at the levels proposed in Table C2 above. Our proposed targets and limits are informed by our own review of Aurora's unplanned reliability modelling, the Verifier's report and external advice from Strata.

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[214] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020) at Figure 114 and Figure 115 show Aurora's proposed SAIDI forecasts targets as about four percent worse than its 2016-2020 performance using a different normalisation method (6% for SAIFI).

[215] Commerce Commission "Have your say on Aurora Energy's investment plan - Consumer summary - Key issues paper" (30 July 2020) at para 4.13 and Figure 4.1 and Figure 4.2.

[216] Specifically, in its CPP proposal Aurora incorrectly converted its 'raw' unplanned SAIDI and SAIFI forecasts to 'normalised' forecasts using a scaling factor that did not appropriately reflect the DPP3 methodology. This was identified by the Verifier as the most material reason for differences between Aurora's proposed forecasts and the Verifier's alternative forecasts. Farrier Swier Consulting Pty Ltd and GHD Pty Ltd "Verification report - Aurora Energy CPP application" (8 June 2020) at p.39 and Table E.6.

[217] In addition to the correction applied to the normalisation method provided by Aurora, we have also corrected for an error we found in Aurora's model outputs. This only affects SAIDI and reduces the SAIDI target by an additional 1.05 minutes, or about 1%.

C53 Our draft unplanned outage targets in Table C2 reflect our view of a realistic level of reliability performance that Aurora can achieve while also having the opportunity—but not a guarantee—to earn a 'normal return' on its efficient investment. We have adjusted Aurora's unplanned outage targets to reflect the following draft views we have reached, which differ from Aurora's proposal. Most of these adjustments are not reflected in our draft decision on Aurora's SAIDI and SAIFI limits.

C54 The most material adjustments we have made to Aurora's proposed targets in our draft are based on the following views.

C54.1 Four year reference period: Our view that Aurora's recent four-year SAIDI and SAIFI performance (over 2017-2020) is an appropriate historical reference period to inform the majority of Aurora's SAIDI and SAIFI forecasts that does not rely on asset health modelling (reflecting about 87%).[218] This is consistent with Strata's advice and departs from Aurora's proposal, which was largely informed by its recent three-year SAIDI and SAIFI performance (over 2018-2020). The Verifier suggested we consider the appropriateness of the relatively short three-year reference period proposed by Aurora, which differed to Aurora's earlier modelling that placed more weight on its performance over six years (specifically the 2014-2019 years).[219]

C54.2 Normalisation scaling factor: Our view that Aurora's forecasts should be normalised with reference to the historical experience that is used to inform Aurora's SAIDI and SAIFI forecasts. Consistent with our decision above, this is Aurora's four-year SAIDI and SAIFI performance (2017-2020). We disagree with Aurora's reliance on its 10-year historical performance to calculate a scaling factor to normalise its forecasts that were largely based on its three-year historical performance.

[218] Specifically, Aurora applied a simple three-year average of its 2018-2020 outage performance to forecast outages for five asset categories where it considered sufficient asset health data was not available and for outages primarily attributed to non-asset failures (eg, bad weather).

[219] Farrier Swier Consulting Pty Ltd and GHD Pty Ltd "Verification report - Aurora Energy CPP application" (8 June 2020) p.134 and 428.

C55 The impact of these two adjustments on SAIDI and SAIFI are bolded in Table C3.

Table C3 Isolated impact of applying the four-year reference period

		SAIDI Target (Minutes)	SAIFI Target (Interruptions)
Aurora's proposal (three-year reference period and 10-year normalisation scaling factor)		110.02	1.80
Aurora's proposal adjusted	**Four-year reference period**	**102.29**	**1.67**
Aurora's proposal adjusted	**Four-year reference period and four-year normalisation scaling factor**	**93.93**	**1.67**
Plus other adjustments		5.85	0.11
Our draft decision (all adjustments		88.08	1.57[220]

C56 Table C3 shows that the 'other adjustments' we have made in setting our draft decision account for only 5.85 SAIDI minutes and 0.11 SAIFI interruptions. Individually, each of these are relatively immaterial and include:

C56.1 Our view that Aurora's age-based asset health index is likely to overstate asset deterioration. This affects only about 13% of Aurora's SAIDI and SAIFI predictions, as most of its forecasts rely on a simple average of its performance over the last three years. Specifically, we propose a modest 5% reduction to the affected 13% of Aurora's SAIDI and SAIFI forecasts, as recommended by Strata. This adjustment reflects our view that it is reasonable to expect Aurora to prioritise asset replacements on the condition actually observed as the programme is rolled out, rather than simply replacing assets based on the asset's age (as is implicitly assumed by some of its asset health modelling). Doing so can be expected to lift Aurora's post investment asset heath to a higher overall condition than indicated by its age-based health index. Consistent with this position, both the Verifier and Strata concluded that Aurora's asset replacement modelling was likely to overpredict asset deterioration and overpredict the need to replace assets.[221]

[220] This does not add due to rounding.

[221] Specifically, the Verifier noted that the for some assets, Aurora only considered the age-based asset health assessment as a proxy for the asset's failure and did not factor in failure consequences (i.e, criticality) to determine risk. The Verifier considered that this approach can result in higher expenditure forecasts, with some forecast asset replacements that could be deferred. For example, Farrier Swier "Verification Report – Aurora Energy CPP Application" (8 June 2020), p.168 and 471.

C56.2 Our view that conservative downward adjustments to Aurora's SAIDI and SAIFI forecasts are appropriate to account for reliability benefits that Aurora expects to arise from specific expenditure proposals but has not captured in its reliability modelling. Specifically, we propose an incremental 1% annual improvement on Aurora's proposed SAIDI and SAIFI forecasts, as recommended by Strata. We consider these proposed adjustments are relatively conservative, reflecting the uncertainty in reliably estimating the benefits associated with individual expenditure proposals. Our proposed adjustments assume the following.[222]

C56.2.1 1% annual improvement in Aurora's proposed SAIFI to account for Aurora's strategy to increase corrective and preventive maintenance. The Verifier noted that Aurora did not quantify the benefits of corrective and preventive maintenance and was of the view that Aurora's strategy of identifying and rectifying defects, even when not priority defects, will avoid many of them becoming reliability issues.[223]

C56.2.2 1% annual improvement in Aurora's proposed SAIFI to account for Aurora's strategy to increase corrective and preventive maintenance. The Verifier noted that Aurora did not quantify the benefits of corrective and preventive maintenance and was of the view that Aurora's strategy of identifying and rectifying defects, even when not priority defects, will avoid many of them becoming reliability issues.[224]

C56.3 Our view that Aurora's approach of setting the baseline SAIDI and SAIFI (ie, targets) on the maximum forecast year is inappropriate. We have instead adopted an average of the expected reliability profile over the period.

C56.4 Our view that Aurora's linear regression used to determine SAIDI by asset class, based on SAIFI outcomes is not appropriate. This approach is based on seven datapoints and produced some anomalous outcomes.[225] We consider that the observed SAIDI to SAIFI ratio, or the average interruption length, over the period for which data is available at this level of disaggregation (7 years) is more appropriate for forecasting this relationship. This change reduces the SAIDI target by 0.66 minutes.

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[222] These proposed downward adjustments do not apply to around 13% of Aurora's SAIDI and SAIFI predictions that relied on its asset health modelling.

[223] Farrier Swier Consulting Pty Ltd and GHD Pty Ltd "Verification report - Aurora Energy CPP application" (8 June 2020), p. 39.

[224] Farrier Swier Consulting Pty Ltd and GHD Pty Ltd "Verification report - Aurora Energy CPP application" (8 June 2020), p. 39.

[225] For example, some regressions by asset class produced negative SAIDI outcomes (which Aurora set to zero) for a given SAIFI, very low marginal SAIDI outcomes for a change in SAIFI, or SAIDI outcomes that significantly differed from zero with a SAIFI of zero (the intercept).

Relying on Aurora's recent four-year historical performance

C57 We consider that setting targets with reference to Aurora's most recent four-year unplanned SAIDI and SAIFI performance is appropriate, and on balance more appropriate than reference to Aurora's three-year performance.[226] This is the most material change we have made to Aurora's proposed targets in our draft decision, as shown in C55.

C58 Compared to Aurora's proposal which heavily relies on its reliability performance over the 2018-2020 period, our draft inclusion of 2017 in the reference period provides a wider range of relatively high, medium, and low outage years to predict Aurora's future performance. This is shown in Figure C2 and Figure C3 above.

C59 Overall, we think the greater range of reliability outcomes provided for over the 2017-2020 period is more consistent with the Verifier's view that Aurora's proposed expenditure will lead to arresting the recent increases in unplanned SAIDI and SAIFI, partly driven by Aurora taking a more proactive than reactive approach to managing faults.[227]

C60 We also think the inclusion of the lower 2017 outage year better captures the range of outcomes we would expect, especially from non-asset events that are somewhat beyond Aurora's control (eg, adverse weather, wildlife, and third-party impacts). Non-asset events represent about two thirds of Aurora's forecast (excluding the forecasts based on asset health modelling). The resilience of Aurora's network, which we do not expect to deteriorate over the CPP period, may influence the occurrence of non-asset events. We agree with the Verifier that Aurora's proposed expenditure to improve its asset health, maintenance and vegetation management practices can be expected to improve the resilience of its network to weather and other events outside of Aurora's direct control and Aurora's responsiveness to any outages caused by these events.[228] As such, we consider our draft targets reflects reliability performance that is realistically achievable by Aurora.

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[226] Specifically, this decision affects the portion of Aurora's forecasts that do not rely on asset health modelling (about 87%).

[227] Farrier Swier Consulting Pty Ltd and GHD Pty Ltd "Verification report - Aurora Energy CPP application" (8 June 2020), p.39.

[228] Farrier Swier Consulting Pty Ltd and GHD Pty Ltd "Verification report - Aurora Energy CPP application" (8 June 2020), p.51.

C61 We accept that there is uncertainty in forecasting unplanned outages, particularly without sufficient asset health and criticality data as is the case for Aurora. Unlike our draft decision on Aurora's unplanned targets, our draft limits, which Aurora must comply with, are based on Aurora's previous three-year historical performance, not its performance over the previous four years. This provides Aurora with greater headroom to work within (discussed further below).

C62 We welcome additional evidence that a three-year reference period, or any other reference period or method, is a better predictor of Aurora's benchmark performance (targets) over the CPP period. We note that a five-year reference period (ie the DPP2 period over 2016-2020) does not result in materially different forecasts relative to our proposed four-year reference period.

Normalisation scaling factor

C63 Our draft decision reduces the 10-year scaling period that Aurora use to normalise its raw forecasts, to the most recent four-years. This is consistent with the four-year reference period that we have applied to Aurora's forecasts. As C55 shows, this reduces SAIDI by about 8 minutes while the change in SAIFI is insignificant.[229]

C64 Aurora's unplanned SAIDI and SAIFI forecasts are largely based on its historical outage experience over 2018-2020. To convert its forecasts to normalised forecasts, it applies a "normalisation scaling factor" based on the level of normalisation over the 2011-2020 period, using the DPP3 methodology. In the absence of using a simple average of the historical normalised values, we consider that Aurora's general approach for converting 'raw' forecasts to normalised forecasts is satisfactory. However, we consider that the inconsistency in the reference periods applied in this conversion (10 years compared to three years) is inappropriate for the reasons given in the next paragraph. This is consistent with the position reached by the Verifier.[230] Our independent consultant, Strata, was comfortable with the approach Aurora had taken.

[229] Adjusting for this issue has relatively immaterial impacts on both SAIDI and SAIFI if applying a three-year reference period as Aurora proposed.

[230] The Verifier noted that the period used to estimate the normalisation scaling factor should be the same as the period used to estimate its forecasts to ensure consistency. Farrier Swier Consulting Pty Ltd and GHD Pty Ltd "Verification report - Aurora Energy CPP application" (8 June 2020), p.39.

C65 Aurora reasoned that it had a relatively high level of normalisation in recent years, which should be addressed by using a longer time-series of 10 years. It referenced extreme weather events in 2016 and 2019 and a fire in 2017 and considered these events outliers.[231] Aurora's approach removes less of the raw outage data than occurred over the recent years that forms the basis of its forecasts. This results in a higher normalised forecast. We disagree with this approach and consider it contrary to the purpose of normalisation, which is to remove the impact of major events that occurred. Removing more or less normalisation than actually occurred is not appropriate, especially given a substantial proportion of Aurora's forecasts are based on its average pre-normalised experience over 2018-2020.

C66 We have some reservations about forecasting using pre-normalised data as Aurora has done. It adds a further degree of uncertainty. Ideally, normalised forecasts would be based on normalised historical data. This is the approach taken in DPP3 to derive distributors' SAIDI and SAIFI targets and limits. It would have been possible for Aurora to take this approach for the significant portion of its forecasts that relied on its three-year historical experience. However, we accept that it may have been challenging for Aurora to use normalised forecasts in its asset-health modelling because of the way it assigns asset classes to individual outage events. Despite these reservations, we are comforted that Aurora's historical normalised experience over both a four-year and five-year period is immaterially different to our draft targets that are based on Aurora's pre-normalised performance over a four-year period. As expected, our draft targets are noticeably lower than Aurora's three-year historical normalised experience. This is shown in Table C4 below.

Table C4 Our proposed targets compared to a simplified approach

		SAIDI Target (Minutes)	SAIFI Target (Interruptions)
Aurora's proposal		110.02	1.80
Aurora's historical normalised experience	Three-year normalised experience	101.8	1.71
	Four-year normalised experience	**90.7**	**1.59**
	Five-year normalised experience	**90.3**	**1.58**
Our draft decision (all adjustments)		88.08	1.57

[231] RFI Q019 - Reliability, service measures and quality standards (2).

Adjustments to Aurora's proposed limits

C67 Our draft decision to set unplanned limits in Table C2 is largely based on setting a reasonable buffer above Aurora's proposed targets, rather than to our lower draft targets. We have done this to provide greater headroom in recognition of the greater uncertainty as to the reasonably achievable levels of quality as Aurora improves its network resilience and asset data management.

C68 The exception to applying Aurora's targets as a basis for deriving our draft limits is that we have adjusted the normalisation scaling factor and applied the observed SAIDI to SAIFI ratio rather than Aurora's linear regression, as described at paragraph C55 and C56. These adjustments are relatively immaterial when applied to Aurora's three-year reference period, reducing Aurora's SAIDI target by 3% and its SAIFI target by 1%. We refer to this as a notional target.

C69 Our draft decision has added two standard deviations, consistent with the DPP3 approach, to this notional target to obtain standard limits at 124.94 SAIDI minutes and 2.07 SAIFI interruptions. These draft standards are about 12% and 8% below Aurora's proposed standards.[232] This is because Aurora's proposed SAIDI and SAIFI limits are more than three standard deviations above its proposed targets. Aurora described its proposed limits as its target plus two standard deviations, with a scaling factor to account for its higher target. Aurora considered this will allow for annual volatility in accordance with our DPP3 decision.[233] In our view, this approach is not reasonable; a higher standard deviation indicates greater variation in the data, but Aurora has simply assumed variation is proportional to the change in the target, which we do not consider to be statistically robust. Nonetheless, as C34 shows, the notional buffer between our draft targets and standards is broadly in line with Aurora's proposal.

Our draft decision is to accept Aurora's proposal to retain other DPP3 unplanned outage parameters

C70 Aurora has proposed retaining the approach taken in DPP3 on remaining unplanned outage parameters. Our draft decision is to agree with Aurora and retains the following DPP3 parameters for Aurora's CPP, as proposed by Aurora.

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[232] The DPP3 standard deviation of 9.22 for SAIDI and 0.15 for SAIFI reflect Aurora's historical unplanned SAIDI and SAIFI experience over the 2009-2019 period. For completeness, we note that the SAIDI and SAIFI standard deviations relating to the three-year and four-year historical period is insignificantly different from those we have applied, at 10.72 and 9.14 for SAIDI over the three- and four-year period, and 0.17 and 0.15 for SAIFI over the three- and four-year period.

[233] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), para 899.

C70.1 retaining the major event threshold (boundary value) and treatment of major events (normalisation) set in DPP3. In DPP3, the SAIDI boundary value is 5.69 minutes and the SAIFI boundary value is 0.0737. The relevant reference period used is 2009-2019 outage data. The boundary value will impact the extent to which future outages are normalised. Most of Aurora's proposed reliability over the CPP period is based on its experience over the most recent few years. Given this, we likewise considered shortening the reference period for determining the boundary value. However, we agree with Aurora that the frequency of major events can be quite volatile and intermittent, and a larger sample is appropriate.

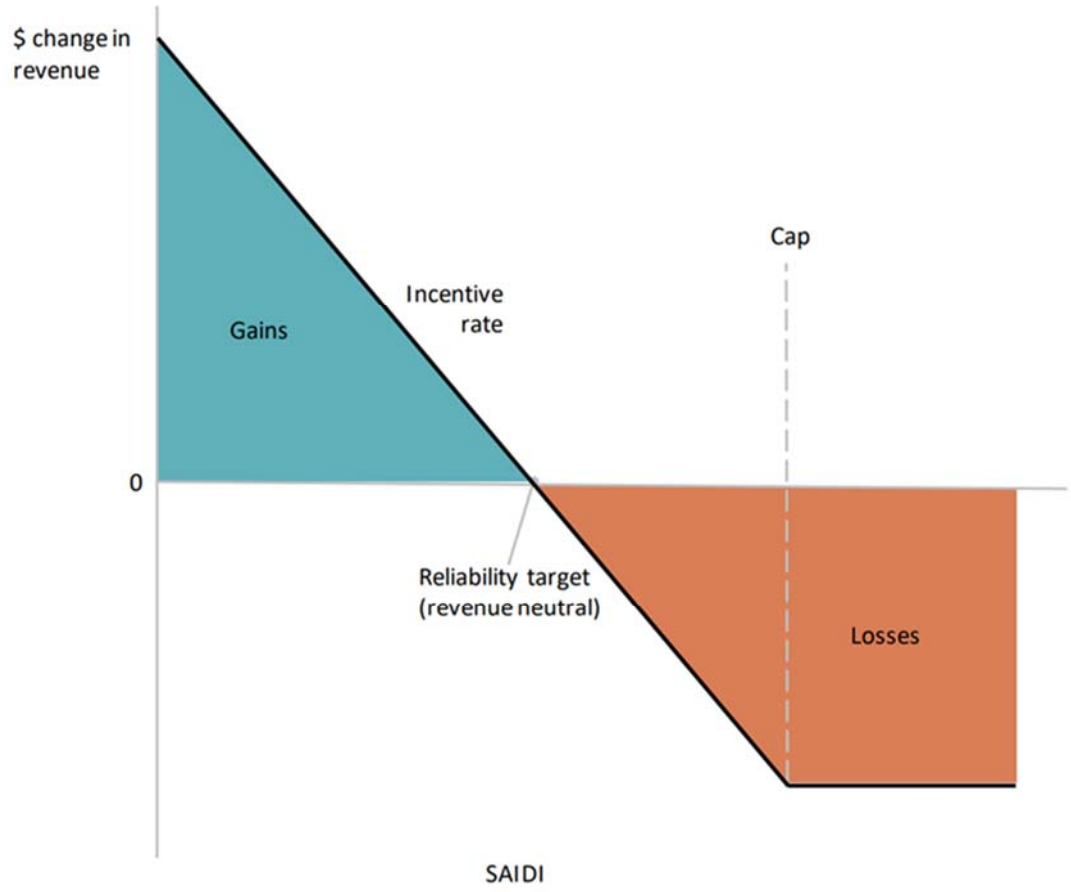
C70.2 retaining the extreme event standard set in DPP3. The extreme event standard deals with extreme one-off events that may cause serious inconvenience for consumers and is set at the lower of 120 SAIDI minutes or 6,000,000 customer minutes for interruptions predominantly caused by specified external factors.

Retaining the incentive scheme for unplanned outages

C71 Our draft decision is to retain the revenue-linked quality incentive scheme for unplanned outages that Aurora currently faces under the current default price-quality path. Together with the expenditure incentives, which are discussed further in Attachment F, the quality incentive scheme provides Aurora with incentives to improve network reliability at the margin where it is cost effective to do so. This includes restoring outages efficiently.

C72 The general relationship between the incentive scheme parameters is shown in Figure C4 below.

Figure C4 Relationship between parameters of the quality incentive scheme



C73 Our draft decision is to maintain the incentive scheme, with an unplanned SAIDI target of 88.08 minutes, which broadly reflects its performance over recent years. We are comfortable that linking financial penalties and rewards to Aurora's recent performance is appropriate and best incentivises Aurora to provide reliability of service at levels consistent with consumer preferences, compared to feasible alternatives. We are mindful that a less stringent target would allow Aurora to be financially rewarded, and recover more revenue from consumers in future, despite consumers likely receiving worse reliability than they had experienced in recent years. This underscores the importance of setting the target that is not too easy for Aurora to achieve, while also being realistically achievable—providing Aurora with an opportunity to earn a 'normal return' on efficient investment.[234] We consider our proposed target balances these objectives.

[234] We considered, and rejected, maintaining the lower DPP3 target of 63.44 SAIDI minutes. This would not reflect Aurora's realistically achievable performance, reflecting reliability levels that are significantly more stringent than Aurora's recent experience. It is also likely inconsistent the principle of providing regulated suppliers with an opportunity of earning a 'normal return' on efficient investment.

C74 We disagree with Aurora's suggestion that applying an incentive scheme to unplanned outages could be seen as inconsistent with customers' short-term preferences to reduce expenditure where possible. Aurora makes this statement while emphasising that consumers said they do not want to pay more for improved reliability at this time.[235] As we have noted, Aurora is proposing significantly worse reliability at a higher cost. Feedback we received on our Issues Paper package suggests consumers are concerned about deteriorating reliability as well as rising prices. Our decision to incentivise marginal improvements in reliability, at an incentive rate that is aligned with consumer preferences (as proxied by the value of lost load, or VoLL),[236] and where it is cost-effective to do so is consistent with this feedback.

C75 The other incentive scheme parameters our draft decision adopts are:

C75.1 Aurora's proposed VoLL of $27,136 per MWh, which proxies the value consumers place on electricity and compares to the $25,000 per MWh applicable under the DPP3. We are comfortable adopting Aurora's slightly higher VoLL because it relies on the same Transpower VoLL study that informed the VoLL we applied in the DPP3. The difference is that Aurora only relies on the study's results for each point of supply to its network, rather than the points of supply across all networks.[237] This directly increases the level of financial exposure that Aurora faces for a marginal change in reliability to $14,279 per SAIDI minute, compared to the $13,155 per SAIDI minute under DPP3.

C75.2 an unplanned SAIDI cap of 124.94 minutes, consistent with our proposed unplanned SAIDI limit (against which Aurora's compliance is assessed). This means that marginal incentives for unplanned SAIDI minutes only apply up to a contravention of the unplanned SAIDI compliance standard, at which point Aurora would face a maximum revenue loss of about $0.53m or 0.58% of its maximum allowable revenue before tax.

C75.3 Aurora's proposed unplanned SAIDI collar of 0 minutes. Consistent with DPP3, this means that Aurora will always face financial incentives for unplanned outages below the SAIDI limits. We do not expect Aurora to have zero unplanned SAIDI minutes. If it did, the associated maximum revenue Aurora would gain is about $1.3m or 1.39% of its maximum allowable revenue before tax.

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[235] Aurora Energy "Submission in response to the Commission's CPP Issues Paper" (20 August 2020), p. 15.

[236] VoLL is an estimate of the economic value, in dollars per MWh, that a consumer places on electricity they plan to consume but do not receive because of an interruption.

[237] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), para 932-935 refers.

C75.4 consistent with the current DPP, Aurora's proposed incentive rate for planed and unplanned outages involves discounting the incentive rate to 23.5% of the value of lost load to acknowledge the sharing of costs through the IRIS mechanism. It also involves a further 10% discount to account for the other incentives created by the quality standards. The two discounts combined make the incentive rate 21.2% of the value of lost load. Our draft decision is to carry this over to the CPP because the same factors (benefit and cost sharing and quality standards) are proposed to be in place in the CPP.

Draft decisions on planned outage standards and incentives

C76 Planned power outages allow Aurora to undertake network replacement, maintenance work, and tree trimming. A planned outage is any interruption where at least 24 hours' notice has been provided to consumers. If at least 24 hours' notice is not provided, it is reported as an unplanned outage.

C77 Planned outages are an important feature of Aurora's CPP because an increase in planned outages is required to allow for the substantial amount of network investment works planned by Aurora. However, planned outages may impact consumers less than unplanned outages because the consumers receive prior notification allowing them to make alternative arrangements.

C78 Our draft decision on the quality standard and incentive scheme for planned outages is to accept Aurora's proposal, which keeps the standard the same as the DPP3 and the incentives the same form, but with different parameters.

Quality standard for planned outages

C79 Our draft decision is to accept Aurora's proposed quality standard for planned outages, which is the same as was set for the DPP3. This is a five-year limit of 979.80 minutes for SAIDI and 5.5385 for SAIFI. We set this in DPP3 with a large buffer because of the long-term benefits to consumers of the network investment and maintenance that is associated with planned interruptions. For DPP3 we considered that the revenue-linked incentive scheme would be a better mechanism than quality standards to ensure that planned outages are managed appropriately. We consider that this reasoning still holds for Aurora under its proposed CPP.

Setting a single planned outage standard over the CPP period

C80 In our draft decision we are accepting Aurora's proposal to have a single quality standard for planned outages that spans the entire CPP period rather than having annual quality standards. This is consistent with our decision for the DPP3 quality standards, in which we said the following.[238]

> Our decision to set the planned reliability standard over the full regulatory period will allow distributors to schedule planned works in a way that works best for their business and consumers, rather than to comply with an annual planned reliability standard. For example, previous settings may have incentivised distributors to inefficiently defer or bring forward work to avoid contravention. We consider that revenue-linked incentives are a better mechanism to encourage each distributor to manage its planned interruptions appropriately, allowing distributors to undertake planned interruptions for investment like replacement of aged assets where it is in the interests of consumers to do so.

C81 We consider that this reasoning remains appropriate for Aurora's CPP. It is perhaps even more important than for the DPPs because of the substantial volume of network investment planned for the CPP, which may not occur evenly in each year of the CPP.

C82 Aurora's own forecast of planned SAIDI and SAIFI varies across the five-year CPP period. For example, Aurora's forecast of planned SAIDI (when de-weighted for meeting certain outage notification criteria) ranges from 101 minutes in the first year of the CPP to 45 minutes in the last (fifth) year of the CPP.

C83 Aurora forecast its planned SAIDI and SAIFI for the proposed CPP period using two models, and the forecast for its proposal is the average of the results of the two models. One of the models is driven by planned volume of work, and the other by planned expenditure.

[238] Commerce Commission "Default price-quality paths for electricity distribution businesses from 1 April 2020 – Final decision – Reasons paper" (27 November 2019), para 7.38.

C84 The Verifier's forecast of planned SAIFI and SAIDI also varies by year across the CPP period and is above Aurora's forecasts. The Verifier's forecast of SAIFI (when accepting Aurora's expected coordination efficiency gains) ranges from 1.10 SAIFI interruptions in the first year of the CPP to 0.64 SAIFI interruptions in the last (fifth) year of the CPP. This compares to Aurora's planned SAIFI forecasts which range from 0.69 down to 0.37 SAIFI interruptions over the CPP period. We note that the Verifier's forecasts were based on its review of Aurora's penultimate planned outage model, where the Verifier had outstanding concerns. The Verifier considered Aurora's two modelling approaches were reasonable. However, it suggested the size of the forecast variation between the two approaches (with one model producing forecasts about 40 % greater than the other) may be indicative of issues with the inputs to Aurora's modelling.[239]

C85 We are satisfied with Aurora's responses to the Verifier's outstanding queries and in particular, its confirmation that it had not included pole reinforcement expenditure or volumes data as the Verifier had suspected.[240] This discrepancy of view was a key factor driving the Verifier's higher SAIFI forecasts.[241] More generally, we consider that Aurora's responses highlighted differences of view between the Verifier and Aurora on detailed modelling points and/or highlighted shortcomings in Aurora's data and uncertainty in its modelling. We do not consider that resolving any of the differences of view would materially influence our decision to set planned outage limits or other incentives and so we do not discuss this further.

C86 If the planned outage standard were annualised rather than spanning the entire CPP period, it would be about 1.11 SAIFI interruptions each year. Figure C5 below shows that if Aurora's planned outages followed the Verifier's forecasts, there would be a clear risk that Aurora would need to adjust its timing of network investment works across the CPP period to meet an annualised planned outage standard. This could be inefficient.

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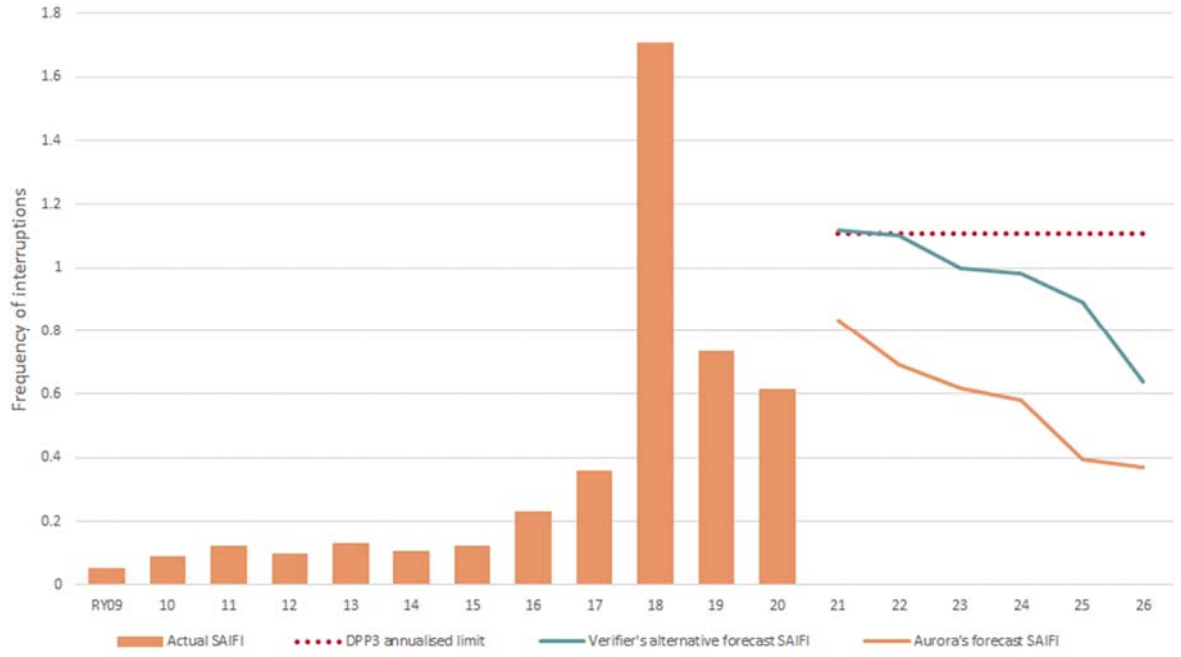
[239] Farrier Swier Consulting Pty Ltd and GHD Pty Ltd "Verification report - Aurora Energy CPP application" (8 June 2020), p.456.

[240] RFI Q018 - Reliability, service measures and quality standards (1).

[241] Farrier Swier Consulting Pty Ltd and GHD Pty Ltd "Verification report - Aurora Energy CPP application" (8 June 2020), p.38 and Table E:19.

Figure C5 Annual SAIFI forecasts - by Aurora and the Verifier



C87 We consider that in practice, the annual variation in planned SAIDI and SAIFI may be even greater than forecast for such a large programme of network investment. We note that there was substantial annual variation in planned outages in the five previous years, as shown above in Figure C5. Aurora's significant increase in planned outages since 2018 is when it started addressing its historic underinvestment. Annual planned outage quality standards could inadvertently constrain Aurora's implementation of the CPP's network investment.

C88 Aurora also noted that its own forecasting was not carried out with the purpose of accurately forecasting year-by-year levels of planned SAIDI and SAIFI, but to get a general forecast of the total period to test the achievability of the existing DPP3 quality standard.[242]

The proposed planned outage standard level is appropriate and achievable

C89 As described above, our draft decision is to set the standard over the five years of the CPP3, so it is only the five-year total SAIDI and SAIFI that matters, not the individual years. This means that a large buffer is not required to allow for annual variability.

[242] RFI Q018 - Reliability, service measures and quality standards (1).

C90 However, we noted in our DPP3 decision that it is important to have a buffer above the historical average level of planned SAIDI and SAIFI to allow for increases in network investment. Network investment typically requires planned outages to allow for additional vegetation management work and the replacement of ageing assets.

C91 Given the substantial network investment planned by Aurora under the CPP, our draft decision is to not make the quality standard for planned outages more stringent because this would risk constraining Aurora's ability to undertake the planned network investment work. The standard should be realistically achievable for the level of Aurora's planned investment. This prevents the standard from constraining Aurora from being able to undertake the planned network investment.

C92 Planned outages often have less impact on customers than unplanned outages because customers are notified in advance so can make alternate plans if necessary. Consumers value advance notice and clear communications about planned outages.

C93 The DPP3 planned outage standard included a large buffer for SAIDI and SAIFI - by setting the limit at triple the average of the ten-year reference period - to allow for increases in network investment.

C94 A large buffer over the ten-year reference period is important for Aurora because the purpose its CPP application is to allow for a large programme of network investment, which will require an increase in planned outages above the past levels. Further, Aurora was undertaking less network investment than necessary during the earlier part of the ten-year reference period, so some of the reference data may be particularly low.

C95 To assess whether the proposed quality standard for planned SAIDI and SAIFI is achievable, we have compared the standard against the level of planned SAIDI and SAIFI forecast by Aurora and the Verifier.

Incentivising notification of outages

C96 We are encouraged that Aurora expects to steadily improve its compliance with the DPP3 notification criteria, from 20% of total planned outages in 2021, to 50% at the start of the CPP period in 2022, and then steadily increasing to 80% by 2026. Aurora says it is developing improved outage management systems and processes with its contractors to ensure that planned outages are communicated correctly and managed to plan.[243] We commend Aurora for including this expectation in its planned SAIDI forecast. Under the incentive scheme, Aurora is financially penalised for not improving its notification of outages and financially benefits by outperforming its forecast notification improvements. We discuss this further from paragraph C103.

C97 Aurora's planned SAIDI forecast includes an expectation of receiving a 50% discount or "de-weighting" for planned outages that meet certain notification requirements, introduced in DPP3. To qualify for this beneficial incentive rate, Aurora must, among other things, directly notify all power companies at least ten working days in advance, work within a specific interruption window and not cancel planned outages at short notice. This is stronger criteria than Aurora's own voluntary charter commitment of providing 10 working days' notice, via the power company, and paying affected consumers $20 when it fails to do so. Under this voluntary commitment, Aurora faces no incentive to minimise cancellations or accurately estimate, and inform consumers, of the window of time that the planned outage will be occurring. Some submitters on our Issues Paper package raised frustration about Aurora cancelling notified planned outages at short notice. Certainty, and the ability to plan, is valued by consumers.

C98 We understand Aurora notifies customers using a range of methods and is investigating further options for planned outage communications, including working with power companies on improved outage update processes, improving its social media platforms, and trialling new channels (for example; text alerts, Interactive Voice Response for inbound calls to our freephone service).[244] Submissions we received on the Issues Paper package suggest consumers have a range of preferences for the timing and length of planned outages, though there was a general consensus to avoid winter. There are also a range of notification preferences from consumers, including social media, text alerts, emails.

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[243] Aurora Energy "Asset Management Plan - April 2020 - March 2030" (12 June 2020), p. xiv.

[244] Aurora Energy "Submission in response to the Commission's CPP Issues Paper" (20 August 2020), p. 14-15.

Planned efficiency gains from improved coordination and bundled work

C99 We are encouraged to see that Aurora's forecasts also include an increasing level of planned efficiency gains for SAIFI gained from coordination of multiple pieces of work. This reflects anticipated efficiencies from more coordination and bundled work during the CPP compared to recent years, which increase over the CPP period (reaching a 15% SAIFI reduction by 2026). This contrasts to Aurora's recent renewals, which Aurora says prioritised the highest risk assets, leading to relatively low levels of coordinated work. Aurora suggested this change in practice makes planned outage forecasting more challenging than operating in a "steady state", where forecasts based on linear regressions are better suited.[245]

Aurora's different forecasts for planned outages

C100 The different forecasts of planned SAIDI and SAIFI over five-years are provided in Table C5. These are compared to the proposed five-year quality standard limit. Aurora's proposed forecasts, which include its proposed notification compliance and efficiency gains, are bolded.

Table C5 Comparison of planned outage forecasts against proposed five-year standard

	SAIDI (minutes	SAIFI (interruptions)
Aurora model 1	631	3.48
Aurora model 2	446	2.45
Model 1 and 2 average	539	2.97
Aurora model average with notification compliance	**361**	N/A
Aurora model average with efficiency gains	N/A	**2.66**
Verifier model	760	5.16
Verifier model with efficiency gains	N/A	4.61
Quality standard limit	980	5.54

[245] RFI Q018 - Reliability, service measures and quality standards (1).

C101 Table C5 shows that all forecasts fall within the proposed standard, suggesting that the proposed standard is expected to be achievable without constraining the planned network investment. This is consistent with Aurora's view that it expressed in its CPP proposal:

> "in general, we do not have a comprehensive dataset of historic planned outage work to support a model with accurate forecasts … our planned outage model was built in the context that it would provide a 'guide' to the level of planned outages required to deliver our works programme. A key objective was to test whether the DPP3 level of planned outages would be sufficient to support the work required to manage network risks. That is, in absence of an historic dataset to support a robust/accurate model we sought to test whether defaulting to a DPP3 level of planned outages would create works delivery risks. To test the sensitivity of our forecast to the modelling technique we developed a hybrid model (expenditure and volume). In addition, the Verifier tested our approach with variants on our approach. In all cases the results indicated that the work programme could be delivered within the DPP3 planned outage limit, noting that the Verifier alternative forecast was close to the DPP3 limit. We therefore concluded that the DPP3 limit provided a useful planned outage limit, protecting customers from excessive outages but also enabling Aurora to better manage safety risks on the network and to prepare the foundations for future improvements in unplanned outage performance."[246]

C102 Aurora's reference to the Verifier's forecast being close to the limit is in reference to the three-year total because Aurora's preference was for a three-year CPP. However, the Verifier's forecast is not particularly close to the limit over a five-year CPP because Aurora's proposed level of planned outages is significant lower in the fourth and fifth year of the CPP, predominantly due to a much lower number of pole replacements being forecasted for those latter years. If we were to accept Aurora's proposal of a three-year CPP, we would need to reconsider whether its proposed quality standard for planned outages is achievable.

Retaining the incentive scheme for planned outages

C103 The revenue-linked incentive scheme for planned and unplanned outages is designed to provide Aurora with incentives to consider cost-quality trade-offs in its decision making. This is particularly important for planned outages because of the expected large number of planned outages and because of the quality standard for planned outages being set at a level that is intentionally unlikely to constrain Aurora's decision-making on planned outages.

[246] RFI Q018 - Reliability, service measures and quality standards (1).

C104 Our draft decision is to accept Aurora's proposed revenue-linked quality incentive scheme for planned outages, which is proposed to take the same form of incentive scheme as was set for DPP3. However, the target level proposed for SAIDI is slightly higher (at 72.16 minutes compared to 65.32 minutes).[247] The higher target level aligns with our expectations that the level of planned outages will be higher than during the ten-year reference period used for setting DPP3 because of the large amount of asset replacement intended for the CPP period.

Aurora no longer supports inclusion of a revenue-linked quality incentive scheme for planned outages

C105 Aurora's CPP proposal includes a proposal for a revenue-linked quality incentive scheme. Aurora proposed a scheme with the same form as the scheme that we set for DPP3, but with some different parameters to take into account the specific circumstances of Aurora during the CPP period. However, Aurora also later explained in a submission on our Issues Paper package that it no longer thought that applying an incentive scheme to planned outages was appropriate as it may lead to a reprioritisation of safety related work and deferral of outage intensive work.[248]

C106 We still consider that a revenue-linked quality incentive scheme for planned outages should be in place for Aurora's CPP. Despite there being some uncertainty in the level of SAIDI that will be achieved, it is valuable for consumers to have marginal incentives in place to incentivise Aurora's decision-making to consider the negative impacts outages have on consumers and cost-quality trade-off in the long-run. By not applying the incentive scheme to planned outages, we remove the financial incentive for Aurora to improve its notification of outages and undertake work efficiently within a specified notified window and without cancellations.

Aurora's proposed parameters for the incentive scheme for planned SAIDI

C107 In line with the revenue-linked quality incentive scheme that we set for all non-exempt Electricity lines companies for DPP3, Aurora's proposed incentive scheme only includes SAIDI, and does not include SAIFI. For planned outages, our draft decision is to accept Aurora's proposed parameters for the scheme, which are shown in Table C6 below against the parameters that were set for Aurora under DPP3.

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[247] We note that Aurora proposed a SAIDI target of 87.52 minutes, reflecting its average forecast over the 2022-2024 year period consistent with its three-year CPP proposal. The 72.16 minutes reflects Aurora's average forecast over the 2022-2026 period.

[248] Aurora Energy "Submission in response to the Commission's CPP Issues Paper" (20 August 2020) at p.16.

Table C6 Proposed incentive scheme parameters for planned outages (annual)

	Aurora's CPP proposal	DPP3 settings
SAIDI target (revenue-neutral point)	72.16 mins	65.32 mins
SAIDI cap	195.96 mins	195.96 mins
SAIDI collar	0 mins	0 mins
Incentive rate	$7,140 per min	$6,578 per min

C108 Based on the proposed parameters that we have accepted in our draft decision, the incentive scheme for planned outages has a maximum level of reward of 0.57% of allowable revenue; and maximum penalty of 0.98% of allowable revenue. This differs to Aurora's proposal.

Planned SAIDI target for incentive scheme

C109 The target for the incentive scheme is the level at which Aurora would not receive any reward or penalty. If Aurora's planned SAIDI is actually above (worse than) the target, then it would receive a penalty. If it were below the target, then Aurora would receive a reward. We consider that the target should be set at the level that we expect to be reasonably achieved in the absence of the incentive scheme so that the scheme is expected to be revenue neutral. This is consistent with providing regulated suppliers like Aurora an opportunity — but not a guarantee— of earning a 'normal return' on efficient investment.

C110 Aurora's proposed target over a five-year period is 72.16 SAIDI minutes, which represents the average of its planned SAIDI forecasts over the five years of the CPP.

C111 We commend Aurora for including its expectation of improving its notification compliance in its target. This provides Aurora with a financial incentive to improve its notification compliance and undertake work efficiently within a specified notified window and without cancellations. This is more stringent than our process for setting the targets for the DPPs because we did not take into account the prospect of the notification requirements being met. However, we consider that this is appropriate for a CPP, which has a greater level of scrutiny of such parameters. If notification de-weighting was not included, the target would be 107.72 minutes instead of 72.16 minutes.

C112 The variation in the forecasts presented by the three modelling approaches (Aurora's two models plus the Verifier's model) highlights some risk in applying the revenue-linked quality incentive scheme to planned interruptions during the CPP. The substantial amount of network investment planned for the period makes it more difficult than usual to forecast the level of planned outages.

C113 Applying the incentive scheme to planned outages provides Aurora with a financial incentive to reduce planned outages. Fewer planned outages may be due to efficiencies, or perversely, due to delays in the work programme at the margin, including work prioritised to remove safety risks.

C114 There are two factors that may help mitigate the risk that Aurora delays work:

C114.1 the possibility of deliverability reporting (requiring Aurora to track progress on its work programme); and

C114.2 unplanned incentives and standard contraventions (higher risk of future unplanned interruptions if planned work is delayed).

C115 Overall, our draft decision is to accept Aurora's original proposal to apply the incentive scheme to planned outages to ensure that there is an incentive to consider the cost-quality trade-off in managing the planned outages for network investment projects. Further, the incentive scheme has an important role in positively influencing Aurora's notification of planned outages.

Cap and collar for revenue-linked quality incentive scheme for planned outages

C116 Our draft decision is to accept Aurora's proposal for the cap and collar parameters for the revenue-linked quality incentive scheme of 195.96 SAIDI minutes and 0 SAIDI minutes respectively. This is the same as was set for the current DPP and we agree that the this is still appropriate for the CPP.

C117 The cap is set at 195.96 minutes in the DPP and in our draft CPP decision to be equal to the annual average of the quality standard for planned outages. We consider that this is appropriate because outage levels consistently above the cap would contravene the standard and so additional penalties are not required.

C118 The collar is set to 0 minutes in the DPP and in our draft CPP decision so that the marginal incentives apply to any level of outages below the cap. We do not consider that there is any robust reason for a higher cut-off, below which Aurora should not consider the cost-quality trade-off.

Incentive rate

C119 Our draft decision is to accept Aurora's proposal for an incentive rate for planned outages of $7,140 per SAIDI minute, which is higher than the DPP3 incentive rate for Aurora of $6,578. Consistent with the DPP, a 50% de-weighting is applied to the incentive rate for planned outages, making it half the incentive rate for unplanned outages (which is $14,279 per SAIDI minute in this draft decision). Aurora's proposed incentive rate is calculated with the same approach as we used for the DPP, except that it has a more targeted value of lost load. We accept Aurora's proposed higher VoLL, as explained earlier at paragraph C75.1.

C120 We consider that a de-weighting for planned outages is appropriate because planned outages may impact consumers less, particularly if they receive reasonable notification. It is also appropriate to de-weight planned outages in the incentive scheme because of the importance of planned outages in achieving necessary network investment.

Service level commitments and compensation

C121 Aurora noted its CPP proposal included areas of quality beyond the quality standards and revenue-linked-quality scheme:

> In addition to reliability standards, our final proposal includes retention and improvement of:
>
> − Communication of planned and unplanned outages, continue to provide call centre and outage notification service with further enhancements to real-time updates for unplanned outages with cause and restoration times
>
> − New connections process, continue improvements to the process for new connections and establish service level targets
>
> − Customer Charter credit scheme, continue compensation scheme for unmet service levels and review complaints process and compensation policy.[249]

C122 We are encouraged by Aurora's commitment to these areas. We are proposing introducing information disclosure requirements that will provide transparency of whether Aurora is meeting these commitments. We have accepted the level of opex proposed by Aurora ($231,000 per year) in its opex forecast to fund its expected level of payments to be made under its compensation scheme.

[249] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), p 227.

C123 We also considered mandating compensation Aurora would be required to pay affected individuals for not meeting certain standards. This would rely on our powers under s 53M(2)(c) of the Commerce Act 1986. However, our draft decision is to not do so because we consider Aurora will have significant incentives in place to meet its commitments to keep and improve its compensation scheme and service level commitments. We consider that there is a significant risk that setting a compensation scheme now could limit Aurora's ability to improve the compensation scheme and respond the consumer consultation that it intends to undertake. We consider that we have insufficient information of consumers value, or the appropriate specifications, for such a scheme at this stage.

We see value for consumers in Aurora's compensation scheme

C124 Compensation schemes are appealing because they provide additional financial and reputational incentives for the electricity lines companies as well as providing some direct redress to consumers affected by poor service.

C125 We consider that it is beneficial for consumers that Aurora has a compensation scheme in place and improves this over the course of the CPP. This is particularly because of the decrease in quality provided by Aurora to its consumers over recent years and our draft decision to set the quality standard for unplanned outages at a worse level than was in place under the DPP.

C126 Aurora's current compensation scheme consists of:

C126.1 any unplanned outages longer than four hours in urban areas and six hours in rural areas (which are not the result of transmission, weather or third-party interference) results in compensation of $50 (residential pricing) or one month’s line charge (general pricing);

C126.2 any planned outages not notified to power companies ten days prior results in compensation of $20; and

C126.3 any power quality complaints that are not investigated in a reasonable timeframe results in compensation of $50.[250]

C127 In addition to the quality measures that have compensation attached to them, Aurora has committed to certain levels of service in other areas. The additional service levels committed to in the charter cover:

C127.1 response time for phone or email enquiries;

[250] The full detail of the compensation scheme is available in Aurora, Aurora Customer Charter, 1 July 2017, Section 7.

C127.2 number of unplanned outages experienced by a customer;

C127.3 time to restore service to a customer after an unplanned outage; and

C127.4 consistent voltage (within 6% of 230 volts).[251]

C128 Aurora's minimum service levels and associated redress go beyond SAIDI and SAIFI and reflect actual experience faced by consumers. This may improve visibility of the actual level of service experienced by customers and incentivise Aurora to take targeted steps to improve poor service levels that are important to consumers, such as response time to enquiries.

C129 Aurora's CPP proposal commits to retaining and improving its customer charter and compensation scheme and Aurora has told us it may consult consumers on its proposed charter. This may lead to an improved agreement between Aurora and its consumers on the expected levels of service that are important to consumers. We are in favour of Aurora consulting its customers on its compensation scheme and service level commitments and expect Aurora to also take into account issues raised by stakeholders in the consultation on the CPP undertaken by Aurora and us.

C130 For example, current and future consultation could lead to an extension of the scope of the compensation scheme to other areas, such as voltage stability, large number of outages for individual consumers, or cancellation of planned outages.

C131 Additionally, we consider that reporting on the minimum service levels and compensation payments (both internal and public reporting) may be a further method of highlighting any areas Aurora can improve on. This includes commitments with no compensation attached, such as Aurora's current commitment to limit the number of outage for individual consumers and consistent voltage.[252]

C132 We are proposing whether to provide additional transparency around Aurora's retention and potential improvement of its compensation scheme by requiring it to report on its scheme over the CPP period.

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[251] The full detail of Aurora's service level commitments is available in Aurora, Aurora customer charter, 1 July 2017.

[252] We envisage that Aurora's quality of supply commitments, such as consistent voltage would be measured by customer complaints about quality of supply and Aurora's response to those complaints (eg, upon investigation, did Aurora determine that it had not met its quality of service commitments and did it remedy that).

C133 We also considered providing additional funding through an opex uplift for the expected increase in costs later in the CPP period as Aurora improves the scheme, which could include extending the range of performance areas or increasing the size of payments under the scheme. However, our draft decision is to keep the level of opex at the level proposed by Aurora ($231,000 per year).

Possible information disclosure requirements on the compensation scheme

C134 We are considering developing five information disclosure requirements relating to Aurora's compensation scheme to provide transparency to:

C134.1 publication of the compensation scheme;

C134.2 publication of the number of payments made under each limb of the scheme;

C134.3 publication of consultation with consumers on potential improvement of the scheme;

C134.4 publication of the number and type of complaints made to Aurora by consumers, including whether or not the complaint was covered by the existing compensation scheme or service level commitments; and

C134.5 publication of information relating to improvements and outcomes in Aurora's process for notifying customers of planned outages.

C135 The process and timeframe for determining the possible information requirements for Aurora under the CPP are different to the determination of the price and quality paths and are detailed in Attachment I - Information Disclosure.

C136 The purpose of requiring public disclosure of the scheme by Aurora would be to improve awareness of the scheme and potential entitlements consumers may have under the scheme. Requiring disclosure of the number of payments made would help provide transparency on whether Aurora is meeting its commitment to the scheme and provide a further insight into the service level performance that Aurora is providing its customers.

C137 As it is likely Aurora will consult on improvements to the service level commitments and compensation scheme, we are proposing requiring disclosure of any such consultation to provide further transparency to stakeholders on any developments to its scheme.

C138 Any changes and improvements to the scheme may be partly informed by information on complaints and we are considering whether to require Aurora to disclose them. This information would help Aurora and stakeholders see whether the areas of common complaint are the areas that are covered by the scheme and service level commitments, or whether there are other areas that are of key concern to customers that are not addressed.

C139 We understand Aurora intends to review the process for identifying non-notified planned outages, as it considers the current controls are less robust than needed. To provide transparency on this, we are considering whether to require Aurora to report on:

C139.1 how it has improved consumers' awareness of its charter and access to compensation, which would include reporting on the outcomes of Aurora's signalled review of identifying non-notified planned outages.

C139.2 its performance against its implied targets in its planned SAIDI forecasts of increasing its compliance with the DPP3 notification criteria over the CPP period, and any planned outages that:

C139.2.1 are cancelled at short notice; and

C139.2.2 are >10% variance from notified time.

Attachment D Proposed allowance for capex

Purpose of this attachment

D1 This attachment outlines our draft decisions on the capex that Aurora will be able to recover from its customers over the CPP period. All expenditure references in this attachment are in real $2020 terms unless stated otherwise.

Summary of our draft decision for capex

D2 Aurora sought approval for $227.7 million of capex for a three-year CPP between RY22 and RY24.[253] Aurora provided information that enabled the Verifier to carry out its verification for both a three-year and five-year CPP and allowed us to review that information and decide on which CPP period should apply. We have reviewed the capex proposal for the five-year CPP period of $356.3 million.

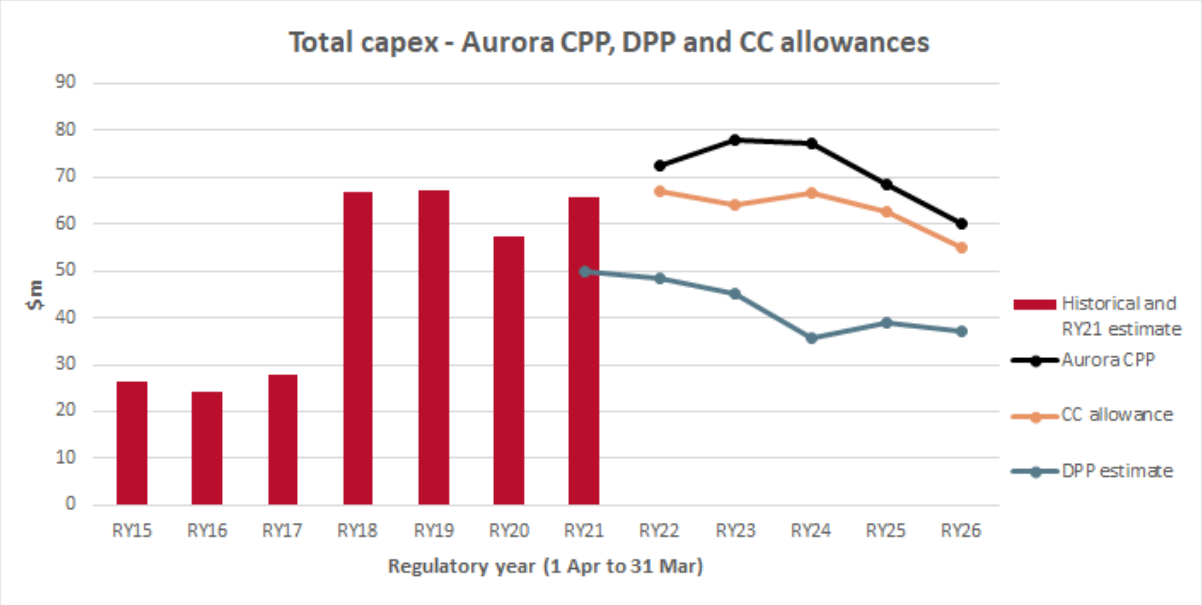
D3 We decided to set a five-year CPP following our review of the Verifier's report and our view that expenditure forecasting risk in 2024-2025 and 2025-2026 had been over-stated by Aurora.[254]

D4 Our draft decision is that Aurora be allowed $315.5 million of its proposed $356.3 million in capex over the five-year CPP period, which is a reduction of $40.9million on what it proposed (see Figure D1).

[253] Note that in this attachment all expenditure references are in real $'s in 2020. These amounts do not include inflation effects which are built into the revenue model separately.

[254] RY refers to Regulatory Year - for example, RY22 refers the 1 April to 31 March period ending on 31 March 2022.

Figure D1 Capex proposal and draft decision allowance compared with DPP allowance estimates and historical expenditure



D5 Of the $40.9 million we do not consider has met the expenditure objective, $18.7 million has not been agreed for a variety of reasons such as demand uncertainty, a cable project requiring an adequate business plan, and in the case of the unapproved $3.3 million of poles renewals expenditure, whether pole reinforcement is seen as technically feasible in RY25 and RY26

D6 If uncertainties are removed, Aurora will be able to seek approval for different aspects of these amounts using the proposed reconsideration mechanism we have introduced as an IM amendment (discussed in Attachment J).

Summary of our capex assessment

D7 The Verifier reviewed 11 projects and programmes in the capex portfolio out of a total of 37, with one of the Growth and Security projects being subsequently withdrawn by Aurora in its application.

D8 The Verifier also applied materiality criteria to choose its project and programme selections which resulted in it reviewing 66% of the total capex programme.

D9 The high-level conclusions made by the Verifier about Aurora's capex portfolio include that:

D9.1 Aurora's asset management practices are on a path to improvement; there is generally a lack of asset condition data and data systems in place;

D9.2 Aurora's policies, procedures, and planning standards are generally not well-developed, and the proposal has heavily relied on the AMP and staff experience to develop forecasts;

D9.3 models used to support some forecasts are not inappropriate and consistent with industry practice, although they will tend to over-forecast investment need;

D9.4 methods to levelise work appear reasonable with criticality analysis being used to prioritise work programmes;

D9.5 Aurora's development in its Field Services Agreements and procurement strategy is appropriate and should result in efficiencies over the CPP period;

D9.6 Covid-19 effects have been incorporated although there is still demand uncertainty with some Growth and Security projects and consumer connections;

D9.7 Aurora should develop more mature project cost estimation processes by improving the accuracy of its unit rate and building block processes;

D9.8 while Aurora's stated aim is to invest to remove safety exposures it was unable to demonstrate the safety risk/ mitigation cost trade-offs and express and understanding of post-investment residual safety risk; and

D9.9 Aurora has not included factors in its models to account fully for potential efficiencies gained during the CPP.

D10 The Verifier concluded that $3.3m of poles expenditure was unverified and that $7.5 million of Growth and Security, and consumer connection capex could be considered contingent ($5.4 million for the Arrowtown 33 kV ring upgrade and $2.1 million of consumer connection capex associated with the upgrade for a tourism related load).[255]

D11 Subsequent to the CPP proposal being submitted the Verifier commented to us that a large proportion of project and programme documentation, expenditure justifications and modelling had to be produced on request during the verification process. This meant we were less confident of accepting the unreviewed capex without some level of scrutiny.

[255] Unverified expenditure is expenditure that the Verifier considers does not fully meet the requirements of Schedule G of the Electricity lines company IMs and cannot be approved. See *Electricity Distribution Services Input Methodologies Determination 2012 amended 20 May 2020* clause 5.5.2- Verification. We agreed with the Verifier and did not approve these amounts.

D12 Additionally, due to the lack of asset management maturity, poor data and asset condition information we decided, with varying degrees of scrutiny, to review the remaining 34% of the capex projects and programmes, rather than just accept this for approval.

D13 We have utilised the November 2018 WSP report throughout our capex renewals programme analysis because this is the most comprehensive recent reporting on the state of Aurora's network. The WSP report provides significant insight into the actual and forecast safety issues in Aurora's network from a bottom-up asset class perspective.[256]

D14 As part of our investigation we sought additional information from Aurora using a formal Request for Information (RFI) process and Aurora provided most information we sought. Throughout this attachment we refer to these RFI's and discuss how we have used the information provided to inform our view of the proposal.

D15 We engaged Strata to review the majority of the 34% unreviewed capex and agreed with many of Strata's recommendations. This resulted in some proposed capex reductions for a variety of reasons such as:

D15.1 many of the growth and security projects should be deferred due to the demand uncertainty brought about by Covid-19 issues;

D15.2 the Smith St – Willowbank inter-tie CBD cable project, should be deferred pending Aurora developing a reasonable integrated CBD cable strategic plan for Dunedin;

D15.3 adjustments have been made due to Aurora's repex modelling assumptions which have likely over-forecast investment need, especially in RY25 and RY26;[257]

D15.4 a top-down 5% efficiency adjustment has been applied to reflect expected improvements in asset management, ICT systems investment, new Field Services Agreements with external contractors tendering for more than 50% of the capex projects and programmes.

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[256] WSP "Independent review of electricity networks - Final report - Aurora Energy" (21 November 2018) available at https://www.auroraenergy.co.nz/assets/Independent-Review-Mar-2018/WSP-Final-Report-PS109832-ADV-REP-003-RevD.PDF

[257] Repex modelling is a standard industry expenditure forecasting approach that uses asset age and a probability distribution curve of asset failure to predict replacement volumes. It is applicable in a situation where the fleet asset age and expected asset life information is available, but asset condition is unknown.

D16 We have included submitter feedback where appropriate throughout this attachment. This feedback has been gathered from Issues Paper package submissions, and feedback from the stakeholder engagement sessions in August.

D17 In this attachment we also discuss a variety of capex related issues such as:

D17.1 a commentary on Aurora's asset management practices;

D17.2 how Aurora has identified investment need and its modelling approach;

D17.3 Aurora's cost estimation processes, how unit rates have been tested, and its new Field Services Agreements;

D17.4 how Aurora will ensure quality assurance of the work done on its network;

D17.5 safety investment and our role;

D17.6 a discussion of our investigation of the Clyde/Earnscleugh transformer outage and N-security zone substation sites; and

D17.7 our reasoning behind a top-down capex efficiency adjustment.

D18 Table D1 summarises the capex proposed amounts, unverified amounts and the reductions following our analysis by capex project and programme, including a proposed top-down efficiency adjustment. The main capex reductions in our draft decision are:

D18.1 $3.3 million of unverified poles expenditure because pole reinforcement may be viable economically from RY24;

D18.2 $4.3 million in sub-transmission cables expenditure due to deferral of some expenditure with low cable fault rates not supporting early replacement;

D18.3 $4.2 million in distribution and LV cables, pole-mounted switches, pole-mounted fuses, and distribution transformer capex due to repex modelling assumptions over-forecasting investment need;

D18.4 $13.3 million of growth and security capex, and $2.1 million of consumer connection capex deferred due to demand uncertainty;

D18.5 $13.5 million based on a 5% top-down efficiency and over-forecasting adjustment to reflect improved asset management systems and processes, new Field Service Agreements increasing competition and better works delivery processes.

D19 Table D2 summarises, at a project and programme level, the analysis we have carried out.

Table D1 Summary of capex project and programme approval amounts (five-year step change refers to the previous five-year period

CAPEX	RY22-RY26 $m	% of total capex	Previous 5-year total $m	5-year step change %	Verified $m	CC/Strata review $m	Post analysis ($m)	5% Eff adjustment	Current view ($m)
RENEWALS									
Poles	$47.9	13%	$104.9	-54%	$44.6	-	$44.6	$2.2	$42.3
Crossarms	$38.3	11%	$4.8	698%	$38.3	-	$38.3	-	$38.3
OH Subtransmission conductor	$16.3	5%	$7.7	111%	-	-	$16.3	$0.8	$15.4
OH Distribution conductor	$28.1	8%	$8.4	236%	$28.1	-	$28.1	$1.4	$26.7
OH Low voltage conductor	$19.6	6%	$0.3	7684%	$19.6	-	$19.6	$1.0	$18.6
Subtransmission cables	$12.1	3%	$6.6	83%	-	$7.8	$7.8	$0.4	$7.4
Distribution cables	$9.4	3%	$2.8	237%	-	$8.5	$8.5	$0.4	$8.1
Low voltage cables	$2.8	1%	$1.6	78%	-	$1.5	$1.5	$0.1	$1.4
Ground mounted switchgear	$14.5	4%	$4.7	206%	-	$14.5	$14.5	$0.7	$13.7
Pole mounted switches	$2.8	1%	$0.7	305%	-	$2.7	$2.7	$0.1	$2.6
Low voltage enclosures	$9.0	3%	$2.0	354%	$9.0	-	$9.0	-	$9.0
Ancillary distribution substation equipment	$5.3	1%	$1.6	223%	-	$5.3	$5.3	$0.3	$5.1
Ground mounted distribution transformers	$1.7	<1%	$1.3	26%	-	$1.7	$1.7	$0.1	$1.6
Pole mounted distribution transformers	$16.7	5%	$3.0	448%	-	$14.9	$14.9	$0.7	$14.2
Protection	$9.3	3%	$6.6	41%	$9.3	-	$9.3	$0.5	$8.8
DC systems	$3.8	1%	$1.2	233%	-	$3.8	$3.8	$0.2	$3.6
Remote terminal units	$1.0	<1%	$12.3	-92%	-	$0.8	$0.8	$0.0	$0.7
Pole mounted fuses	$1.4	<1%	$1.5	-13%	-	$1.1	$1.1	$0.1	$1.0
Zone substations (ZSS)	$41.9	12%	$26.3	59%	$41.9	-	$41.9	$2.1	$39.9
OTHER NETWORK CAPEX									
Consumer connection (net)	$22.6	6%	$32.2	-30%	$22.6	$20.5	$20.5	$1.0	$19.4
Asset relocations (net)	$3.8	1%	$5.1	-25%	-	$3.8	$3.8	$0.2	$3.6
Reliability Safety and Environment	$1.4	<1%	$7.0	-81%	-	$1.4	$1.4	$0.1	$1.3
Future Networks	$1.4	<1%	$0.2	478%	-	$1.4	$1.4	$0.1	$1.3
NON-NETWORK CAPEX									
IT Capex	$12.2	3%	$8.6	43%	$12.2	-	$12.2	-	$12.2
Facilities	$2.9	1%	$2.9	3%	-	$2.9	$2.9	$0.1	$2.8
GROWTH and SECURITY									
Arrowtown 33kV Ring Upgrade	$5.4	2%	$0.6	-	$5.4	-	-	-	-
Arrowtown Zone Substation 33kV Indoor Switchboard	$2.6	1%	$0.0	-	-	-	-	-	-
Omakau New Zone Substation	$3.0	1%	$0.1	-	-	$3.0	$3.0	$0.2	$2.9
Distribution and LV Reinforcement	$14.0	4%	$9.7	-	-	$14.0	$14.0	$0.7	$13.3
Smith Street to Willowbank Inter-tie	$5.2	1%	$0.5	-	-	-	-	-	-
TOTAL CAPEX	**$356.3**				**$231.0**	**$109.6**	**$328.9**	**$13.5**	**$315.5**

Table D2 Summary of Aurora CPP capex analysis

Programme and Project references	Proposed expenditure ($m)	Allowance amount ($m)	Key Verifier views and our analysis that support draft decisions
Poles	$47.9m	$44.6m	• High-profile pole failures in Aurora's network resulted in significant programme of pole replacement and reinforcement; CPP Application notes 20% of pole fleet (about 12,000) replaced or reinforced since 2017. • Replacement programme forecast volumetric based on asset age based repex analysis overlaid with risk framework to identify intervention prioritisation; reasonable approach given early stage of asset condition understanding in this fleet; Repex model assumptions would tend to over-forecast need but reasonable. • The Verifier identified that safety risk mitigation not fully supported by analysis; difficult to judge safety risk vs mitigation cost balance; given asset management maturity, risk averse forecasting judged reasonable. • Cost benchmarking considered reasonable; unit rates were tested by Jacobs against recent industry review. Field Service Agreements with three contractors and tendering for capex work should result in cost efficiencies. • Some submitters questioned pole programme efficiency and efficacy; Aurora has halted pole reinforcement pending expert engineering review; pole reinforcement if sound appears economic for ≥ eight-year deferral. • Based on Verifier findings and our analysis we propose that $44.6million of poles renewals capex meets expenditure objective subject to a 5% efficiency adjustment - $3.3 million was unverified because pole reinforcement could be option from RY25.

Programme and Project references	Proposed expenditure ($m)	Allowance amount ($m)	Key Verifier views and our analysis that support draft decisions
Crossarms	$38.3m	$38.3m	• There was no dedicated renewal programme for this asset fleet prior to 2020; crossarm replacements previously included within pole renewal, re-conducting, and reactive works. • Aurora planning to replace 3,000 cross-arms a year which includes insulators and fittings; forecasts volumes based on age with work prioritised based on location risk assessment. • Replacement programme forecast volumetric based on asset age based repex analysis would tend to over-forecast replacement volumes. Investment consistent with the imperative to mitigate safety risk and ageing population. • Cost benchmarking considered reasonable; unit rates were tested by Jacobs against recent industry review; Field Service Agreements with three contractors and tendering for capex work should result in cost efficiencies. • The Verifier identified a range of improvements such as implementing risk assessment, developing safety expenditure business cases and benchmarking of unit cost assumptions. • Based on Verifier findings and our analysis we propose that $44.6 million of crossarms renewals capex meets the expenditure objective; Aurora already models an approximate 5% efficiency adjustment in this category.

Programme and Project references	Proposed expenditure ($m)	Allowance amount ($m)	Key Verifier views and our analysis that support draft decisions
Sub-transmission OH conductor	$16.3m	$16.3m	• Significant amount of overhead (OH) sub-transmission OH conductor has exceeded its expected life; there are clearance violations and an increasing trend of conductor drop issues in the distribution OH conductor fleet. • WSP identified a range of issues with this asset fleet such as: - Aurora does not have a dedicated inspection and testing programme for overhead conductors but undertakes visual inspection on an opportunistic basis; - the Berwick-Halfway Bush A, B and C sub-transmission OH lines are in poor condition and there is a higher probability of failure on many sections; - the distribution OH conductor contributes the largest impact to network performance, with an annual average of 33% of the outages from 2013 to 2017; and - between 2015 and 2018 there was 225 public hazard incidents relating to overhead conductor failures in Aurora's network, with 27 of these classed as serious hazards. • The Verifier reviewed several operational standards and forms related to overhead line design, construction, and inspection; supported by the AMP information. • OH conductor Investment drivers appropriately identified, the asset condition data limitation described, and the assumptions used to support need have been explained; investment need generally aligned with risk management framework and asset management principles; we tested alternatives for Berwick-Halfway Bush 33 kV rationalisation project – project driver asset condition and comparative cost analysis appropriate. • Unit rates tested by Jacobs against recent industry review; Field Service Agreements with three contractors and tendering for capex work should result in cost efficiencies. • The Verifier identified a range of improvements for managing this asset class such as improving asset data, understanding how investment links to risk, and regular benchmarking of unit costs to improve efficiency. • Based on Verifier findings and our analysis we propose that $28.1 million of distribution OH and $19.6 million of LV OH conductor expenditure meets the expenditure objective subject to a 5% efficiency adjustment. • Majority of sub-transmission OH conductor expenditure to replace conductor on Berwick-Halfway Bush lines; need for replacement tested and rationalisation to two lines justified; we propose that $16.3 million meets the expenditure objective subject to a 5% efficiency adjustment.
Distribution OH conductor	S28.1m	$28.1m	
Low-voltage OH conductor	$19.6m	$19.6m	

Programme and Project references	Proposed expenditure ($m)	Allowance amount ($m)	Key Verifier views and our analysis that support draft decisions
Distribution switchgear-Ancillary Distribution Substation Equipment	$5.3m	$5.3m	• Key reasons for significant uplift in expenditure - asset condition, safety, reliability, and obsolescence. • WSP identified a range of issues in this asset fleet such as: - WSP analysis found many switchgear assets were not operating correctly when tested; - evidence of auto-reclosers detecting faults, tripping lines and auto-reclosing, but then failing to re-trip when the fault remained which can lead to a severe hazard; - significant number of distribution switchgear units defective and inhibit normal operation of network – this can lengthen outages or increase customers affected as an upstream switch must be operated instead; and - the L&C type switchgear are at or approaching their end of life considered to have high probability of failure - found to have an explosive failure mode and high safety risk. • The Verifier reviewed LV enclosures programme; review changed Aurora's forecast replacements from 400 to 230 units p.a.; AMP material main source of policies, planning standards and procedures, and staff experience. • Drivers to mitigate safety risks are appropriately identified; however, unknown condition had previously limited Aurora's ability to support the proposed replacements. • The Verifier initially not satisfied with LV enclosures unit cost estimates after cost benchmarking; Aurora revised its unit costs to be consistent with expenditure objective; Verifier concluded that it fully verified the revised forecast for the LV enclosures renewals expenditure. • We accepted that ground mounted switchgear and ancillary distribution substation equipment expenditure was necessary due to safety, reliability, protection and technology obsolescence issues. • Strata reviewed pole-mounted fuses and switches programmes and recommended adjustments after modifying repex modelling assumptions to better reflect likely asset failure rates. • Unit rates were tested by Jacobs against recent industry review; Field Service Agreements with three contractors and tendering for capex work should result in cost efficiencies. • Based on the Verifier findings and our analysis we propose that $32.6 million of distribution switchgear renewals capex meets the expenditure objective subject to a 5% efficiency adjustment (note Aurora already models a 5% efficiency adjustment in the LV enclosures asset category).
Distribution switchgear-Low-voltage enclosures	$9.0m	$9.0m	
Distribution switchgear-Ground mounted switchgear	$14.5m	$14.5m	
Distribution switchgear-Pole-mounted switches	$2.8m	$2.7m	
Distribution switchgear-Pole-mounted fuses	$1.4m	$1.1m	

Programme and Project references	Proposed expenditure ($m)	Allowance amount ($m)	Key Verifier views and our analysis that support draft decisions
Sub-transmission cables	$12.1m	$7.8m	• Aurora state key reasons for significant uplift in sub-transmission cables - asset condition of gas-filled cables; there is no significant expenditure increase for distribution and LV cables due to relatively good condition. • WSP identified a range of issues with this asset fleet such as: - no comprehensive set of cable test results for sub-transmission cables or records of oil leaks; no cable testing records for the XLPE and PILC sub-transmission cables; no regular testing regime in place; - sub-transmission cable outage and fault records not available; no inspection or issue investigation records available for faults or specific failure modes; - 10% of distribution PILC cables and entire section of HV submarine cables exceeded expected life and represent an elevated risk of failure; and - cast iron pot-head distribution cable terminations on poles in the Dunedin area were identified as a public safety risk. Since 2018 Aurora has been addressing this safety issue. • The Verifier did not review any cables assets; for this we engaged Strata. • AMP material main source of policies, planning standards and procedures and staff experience. While investment drivers for cables are largely consistent with industry practice, policies and planning standards still developmental. • Sub-transmission cable replacement driven by asset age backed by staff knowledge of assets; investment need identified but lacking analysis to prioritise replacement order and timing; • Distribution and LV cable replacement programme forecast volumetric based on asset age based repex analysis would tend to over-forecast need. Strata modified repex model assumptions to better reflect failure rates and recent replacement rates. • Strata analysis also suggests deferral of sub-transmission cable expenditure due to recent fault rates not supporting early replacement. • Unit rates were tested by Jacobs against recent industry review; Field Service Agreements with three contractors and tendering for capex work should result in cost efficiencies. • Based on our analysis and Strata findings, we propose that $17.8 million of cable renewals capex meets the expenditure objective subject to a 5% efficiency adjustment.
Distribution cables	$9.4m	$8.5m	
Low-voltage cables	$2.8m	$1.5m	

Programme and Project references	Proposed expenditure ($m)	Allowance amount ($m)	Key Verifier views and our analysis that support draft decisions
Zone substations – power transformers, indoor and outdoor switchgear	$41.9m	$41.9m	• Aurora's key reasons for significant uplift in expenditure - asset condition, safety, and reliability. • WSP identified a range of issues with this asset fleet such as: - East Taieri zone substation a moderate safety risk; located adjacent to a petrol station but with no physical protection in case of a serious failure and/or fire; - eight transformers (12.7%) identified, based on industry performance, as high risk to reliability, predominately due to the transformer internal condition and tap changers; - 129 circuit breakers (31%) have exceeded their expected lives; the inspection, testing, and maintenance of ZSS circuit breakers is incomplete with 25 circuit breakers had not been maintained within the required maintenance schedule; and - some circuit breakers identified industry as having an elevated risk of failure; some switchboards are not rated to contain an arc fault - elevated risk to field crews. • The Verifier concluded AMP material main source of policies, planning standards and procedures; key modelling inputs and assumptions. • Aurora has taken an asset health/asset criticality risk-based approach to prioritise interventions for transformers and indoor switchgear and an asset health-based prioritisation for outdoor switchgear. • Aurora's zone substation primary asset modelling approach demonstrates a high degree of asset management maturity and provides confidence investment need and timing can be relied on. • Asset criticality framework contains a variety of modelling inputs such as network security, load type, load magnitude and transfer capability. • Power transformer failure rates compared against NZ and Australian data and found to be higher and provide further support for investment need. • Unit costs for the power transformer asset class benchmarked against industry peers and were generally found to be reasonable; Jacobs price book review confirms unit rates reflect industry costs; Field Service Agreements with three contractors and tendering for capex work should result in cost efficiencies. • Based on the Verifier findings and our analysis we propose that $41.9 million of zone substation renewals capex meets the expenditure objective subject to a 5% efficiency adjustment.

Programme and Project references	Proposed expenditure ($m)	Allowance amount ($m)	Key Verifier views and our analysis that support draft decisions
Secondary systems - Protection	$9.3m	$9.3m	• Protection related safety issues identified by WSP (confirmed by Aurora in proposal) driving majority of this expenditure; WSP concluded in its review that protection system assets posed a significant safety risk and their remediation should be assigned a high priority. • WSP identified a range of issues with this asset fleet such as: - high risk that protection settings not appropriate for current loading and network fault currents; - five relay types are obsolete technology and consistently losing calibration between maintenance cycles; and - failure of some protection relays to operate as intended has resulted in live conductors on the ground not being detected and de-energised. • There are limited planning standards and policies in place for protection fleet but in the immediate term safety is the driver for replacement; longer term Aurora needs to develop fit-for-purpose secondary systems asset management and operational standards to avoid present situation happening again. • Proposed protection relay replacement volumes are supported - based on assessment of present relay functionality not being fit-for-purpose and posing clear safety risk. • Prioritisation of replacement based on failure consequence and need to coordinate with zone substation projects. This is a reasonable approach. • The Verifier satisfied with the proposed unit cost estimates based on the assessment of cost data benchmarking and asset scope review; Jacobs price book review confirms unit rates reflect industry costs. • Field Service Agreements with three contractors and tendering for capex work should result in cost efficiencies. • Strata recommended we adjust RTU approval amount to $0.8 million; some expenditure could be brought forward into 2020/2021. We agree that this recommendation is reasonable. • Strata made no recommendation about a reduction of DC systems expenditure. Strata not convinced that the DC systems replacement strategy was prudent and efficient. However, given the backlog of expenditure required and that this expenditure supports protection systems, a key safety risk, we accepted the need. • Based on our analysis and the Verifier and Strata findings, we propose that $13.9 million of secondary systems renewals capex meets the expenditure objective subject to a 5% efficiency adjustment
Secondary systems - DC systems	$3.8m	$3.8m	
Secondary systems - Remote Terminal Units (RTU's)	$1.0m	$0.8m	

Programme and Project references	Proposed expenditure ($m)	Allowance amount ($m)	Key Verifier views and our analysis that support draft decisions
Consumer connections	$22.6m	$20.5m	• Volumes of new connections driven by population growth and economic activity; the forecast based on historical spend, with forward projection based on an average of previous five-year expenditure and identified step load changes. • Customer contribution rate of 60% assumed for new connections; Covid-19 effects have been included with a 20% reduction assumed in RY21 and 25% in RY22 and RY23. • The Verifier tested the approach: - assumption that base forecast gross connection expenditure (except for impact of ovid-19 and identified loads) will align with historical expenditure not unreasonable; and - Aurora's Covid-19 impact reductions not unreasonable although not fully aligned with how it forecasts opex. • We tested contributions policy and whether this had been consulted on, which it has not; electricity lines company mean is 50% contribution by new connecting party and Aurora information demonstrates inconsistent policy across electricity lines companies.
Asset relocations	$3.8m	$3.8m	• We also tested asset relocations capex at a high level. This expenditure seems reasonable and is consistent with historical expenditure, being 25% less than the previous five-year period, mainly due to the change in Aurora's contributions policy. • The Verifier concluded that due to Covid-19 considerations, a major tourism operator driven connection should be treated as contingent, affecting $2.1 million of consumer connection capex. We have agreed with this conclusion. If this tourism connection becomes more certain, Aurora can utilise our proposed reconsideration mechanism (see Attachment J) and seek approval for additional funding • Based on the Verifier's findings and our analysis we propose that $20.5 million of consumer connection capex and $3.8m of asset relocations capex meets the expenditure objective subject to 5% efficiency adjustments; and that $2.1 million of consumer connection capex should be treated as contingent due to demand uncertainty.

Programme and Project references	Proposed expenditure ($m)	Allowance amount ($m)	Key Verifier views and our analysis that support draft decisions
Minor capex	$5.7m	$5.7m	• Tested three categories of minor capex using a top-down assessment approach. • Reliability, Safety, and Environment ($1.4m) - beyond RY24 install auto-reclosers to reduce the number of consumers affected by interruptions; remote controlled switches to reduce time consumers affected by interruptions; fault passage indicators to reduce time to find faults. • No explanation provided about significant historic expenditure in RS+E and decline over CPP period; Aurora's 2020 Asset Management Plan states CPP is focussed on mitigating safety risk and meeting required growth rather than investing to improve reliability; • Future Networks ($1.4m) - investment to increase visibility of LV network in preparation for small scale distributed connection of electric vehicles, storage batteries and solar power panels; electricity lines companies have little visibility of their LV networks and its about 40% of network. • The connection of the distributed devices can significantly change existing power flow patterns in low-voltage networks; improving monitoring is likely to be a prudent investment. • The network monitoring capability can also be used to monitor consumer voltage regulation issues and incipient faults in a network; this expenditure can have multiple uses. • Facilities ($2.9m) - no explicit historical capex costs possibly due to the previous arrangement with Delta; Aurora taken a base-step trend approach to forecast; • Strata review observed a forecast of facility equipment could be achieved by comparing the historical expenditure with the asset values and projected depreciation but that this had not been carried out. • Aurora had not provided any detail about its use of a historical average expenditure nor any explanation of an upward adjustment, apart from increased staff numbers, which is likely to be a reasonable driver; • Strata concluded that based on absence of information it was unable to conclude the expenditure was reasonable and prudent but that given the low value of the forecast, didn't recommend an adjustment. • After high-level review we propose that $2.9 million for Facilities, $1.4 million for Reliability, Safety, and Environment and $1.4 million for Future Networks capex meets the expenditure objective subject to 5% efficiency adjustments

Programme and Project references	Proposed expenditure ($m)	Allowance amount ($m)	Key Verifier views and our analysis that support draft decisions
ICT capex	$12.2m	$12.2m	• Verifier fully reviewed ICT programme. Prior to July 2017, Aurora's ICT services were subcontracted to Delta as a management charge, minimising costs in the short-term; Aurora has a backlog of lifecycle expenditure. • Policies and planning standards for the ICT programme were reviewed; Aurora Information Systems Strategic Plan 2025 (ISSP 2025) based on numerous external reviews. • ICT capex and opex will have benefits in work scheduling, cost control and delivery performance monitoring that will interact with most capex and opex programs. • Modest efficiency savings predicted by Aurora: preventive maintenance - initial 1% benefit p.a. for RY24, increasing to 5% p.a. for RY26; vegetation management – benefit of 0.5% p.a. from RY22 to 2.5% for RY26 and subsequent years. • Aurora ICT programme CBA shows negative NPV in first five years from RY21, but a compensating large positive NPV when next five years included. • Aurora CBA assumes only minor efficiency improvements in preventive maintenance, in contrast to Verifier industry experience - development or enhancement of AMS's and AM improvements would offer greater benefits than 1–5% annually. • Peer review process used to refine forecasts – assess current state; discuss future requirement, bottom-up plan to address need; challenge by Board, GM/CPP Governance. • Capex forecast based on Deloitte review and ISSP strategy document; investment need in discrete focus areas; capability either not in place or upgrade required such as new AMS, upgrade of GIS, and new FMIS. • Opex forecast based on move away from asset centric ICT to cloud-based ICT; bottom-up approach appropriate given maturity of ICT; tested against a range of investment drivers. • Forecasts benchmarked against data reported to AER by Australian electricity lines companies; suggests Aurora's planned recurring ICT expenditure comparable to Australian electricity lines company peers. • Based on these considerations we consider ICT forecast expenditure likely to be prudent and efficient given the maturity of Aurora's present asset management systems and ICT capability. • Based on the Verifier's findings and our analysis we propose that $29.2 million of ICT capex and opex meets the expenditure objective
ICT opex	$17.0m	$17.0m	

Programme and Project references	Proposed expenditure ($m)	Allowance amount ($m)	Key Verifier views and our analysis that support draft decisions
Ground and pole-mounted distribution transformers	$18.3m	$16.6m	• Aurora state key reasons for expenditure - asset condition and decision to relocate high capacity pole-mounted transformers to the ground. • The Verifier did not review the distribution transformer asset class; for this we engaged Strata. • WSP identified few issues with this asset class: - data generally good but accessibility of the data was not easy and spread over many separate documents and systems including GIS, spreadsheet, and PDF site inspection reports; - Aurora network has 7,029 distribution transformers and 13 voltage regulators; - ground-mounted types assumed asset life 55 years at 40% capacity utilisation; - pole-mounted usually not maintained and operated at 60% to 80% capacity utilisation; pole-mounted types usually replaced after failure, which is the industry approach, unless the asset location poses a safety risk; and - failure rate data suggests that 10 distribution transformer units a year on average are failing. • AMP material is the primary source of asset management planning and strategy information; Aurora's 2018 strategy was to replace 500 pole mount transformers during the 10-year AMP forecast planning period, including converting 20 pole-mounted units to ground mounted units; • Managed run-to-failure strategy appropriate for </= 100kVA pole-mounted distribution transformers and is supported; • Primary driver of major $21.4m pole to ground conversion programme in Dunedin network for larger >200kVA transformers; expenditure uplift should have warranted business case including options analysis prior to inclusion in CPP; approach may be supported due to safety and seismic considerations; • Strata recommend that some pole to ground conversion programme expenditure is deferred until Aurora develops business case to support the investment uplift strategy. We agree with this recommendation and adjustment. • Unit rates were tested by Jacobs against recent industry review; FSA's with three contractors and tendering for capex work should result in cost efficiencies.

Programme and Project references	Proposed expenditure ($m)	Allowance amount ($m)	Key Verifier views and our analysis that support draft decisions
			• Based on our analysis and Strata findings, we propose that $16.6 million of distribution transformer capex meets the expenditure objective subject to a 5% efficiency adjustment.
Network growth and security projects **Upper Clutha DER project**	$30.3m $3.0m	$17.0m $3.0m	• Key driver for the growth and security portfolio is demand growth; Dunedin has relatively low levels of demand growth while there are higher levels in Central Otago. • Aurora security of supply guidelines used to design network reliability levels (e.g. N or N-1 supply security) used as a guideline only; • Aurora's forecasting follows formal needs assessment process that identifies long and short list options, applies economic analysis to short list options, and identifies the preferred option following CBA. • The Verifier reviewed two projects - Riverbank upgrade and Arrowtown 33 kV ring upgrade; Aurora has deferred Riverbank upgrade to RY27. • Strata reviewed major growth and security projects and Upper Clutha DER project concluding that: - Aurora's assessment of Covid-19 impact broad brush estimates at best; Aurora's security standards like other NZ electricity lines companies; VoLL assumptions and cost-benefit analyses seem reasonable; - Upper Clutha DER solution affords sub-transmission network asset deferral advantages if it can be implemented cost-effectively and sustainably and meets the expenditure objective; - Arrowtown 33 kV ring project should be contingent and packaged with Arrowtown 33 kV switchboard project; - Omakau substation project meets the expenditure objective unless there is considerable demand reduction; Omakau transformer has reached full summer capacity and limited load transfer capability is available; - Smith St to Willowbank project first step in $35m+ programme in Dunedin CBD; Aurora should have provided more coordinated justification for programme, namely a comprehensive CBA with full probabilistic energy at risk planning to justify change in architecture; suggested deferral until plan developed which we agree with.

Programme and Project references	Proposed expenditure ($m)	Allowance amount ($m)	Key Verifier views and our analysis that support draft decisions
			• We agree that the Omakau and Upper Clutha DER projects meet the expenditure objective, and others should be treated as contingent until demand becomes more certain and a CBD cable programme business case is developed. • We reviewed aspects of $14 million distribution and LV network reinforcement programme. We tested process and planning approach Aurora uses to forecast need, whether it investigates options to meet the need, and if it uses economic analysis to find the least cost solution. We are satisfied that Aurora takes a prudent approach to forecasting the distribution and LV network reinforcement capex and meets the expenditure objective. • Based on the Verifier analysis and Strata findings, we propose that $17.0 million of proposed capex in growth and security meets the expenditure objective subject to a 5% efficiency adjustment, and $3.0 million for the Upper Clutha DER meets the expenditure objective.

Review of Aurora's CPP proposal - capex

CPP evaluation criteria

D20 The criteria that we must use to evaluate a CPP are set out in electricity lines company input methodologies.[258] These criteria are intended to ensure that our determination of a CPP meets the long-term benefit of consumers.

Evaluation criteria for customised price-quality path proposals

The Commission will use the following evaluation criteria to assess each CPP proposal:

a) whether the proposal is consistent with the input methodologies;

b) the extent to which the proposal promotes the purpose of Part 4 of the Act;

c) whether data, analysis, and assumptions underpinning the proposal are fit for the purpose of determining a CPP;

d) whether the proposed capital and operating expenditure meet the expenditure objective;

e) the extent to which any proposed changes to quality standards reflect what the applicant can realistically achieve taking into account statistical analysis of past SAIDI and SAIFI performance; and/or (ii) the level of investment provided for in proposed; and

f) the extent to which the CPP applicant has consulted with consumers on its CPP proposal; and the proposal is supported by consumers, where relevant.

D21 Of the evaluation criteria, Criteria d) is the most relevant to assessing capex.

D22 Whether Criteria c) data and assumptions are fit for purpose, and Criteria f) consumer consultation will also sometimes be relevant, and it is noted in this attachment where this is the case.

Whether the proposed capital expenditure reflects the expenditure objective

D23 The expenditure objective requires us to assess Aurora's proposed capital expenditure to determine whether it reflects the efficient costs that a prudent supplier subject to price-quality regulation would require to:

[258] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020, clause 5.2 available at https://comcom.govt.nz/__data/assets/pdf_file/0017/60542/Electricity-distribution-services-input-methodologies-determination-2012-consolidated-20-May-2020-20-May-2020.pdf.

D23.1 meet or manage the expected demand for electricity distribution services, at appropriate service standards, during the customised price-quality path regulatory period and over the longer term; and

D23.2 comply with applicable regulatory obligations associated with those services.[259]

D24 The assessment of forecast expenditure is not a mechanistic process – it necessarily involves the exercise of judgement supported by expert advice. We consider that a 'prudent supplier' is a supplier whose planning and performance standards reflect good electricity industry practice (GEIP), and we note that the Verifier took this approach.[260]

D25 We assess the prudency of expenditure and efficiency during the regulatory period and over the longer term. As such, our assessment of forecast expenditure focusses on the CPP regulatory period, but also considers longer term impacts.

The Verifier selection of identified programmes for review

D26 The IMs require that for purposes of the capital and operating expenditure reviews set out in Schedule G5(1)(d) and G6(1)(g), the Verifier must select no more than 20 projects and programmes. These are called the Identified Programmes.[261]

D27 In selecting the identified programmes, the Verifier must consider:[262]

D27.1 the long-term interests of consumers;

D27.2 our ability to effectively review the capex and opex forecasts against the expenditure objective;

D27.3 the rationale for the CPP;

D27.4 whether the identified programmes selected are enough to provide an opinion on whether the proposal is prepared in accordance with the applicants planning standards and policies, at an aggregate level, and for each of the capex and opex categories;

D27.5 the materiality of the programmes and projects in the CPP proposal; and

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[259] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020 clause 1.1.4

[260] Farrier Swier Consulting Pty Ltd and GHD Pty Ltd "Verification report - Aurora Energy CPP application" (8 June 2020), p. 25-26

[261] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020 Schedule G4(1)

[262] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020 Schedule G4(2) and G4(3)

D27.6 address the key risks the applicant is exposed to, a key driver of the need to submit the proposal, or any obligation that has a significant impact on the applicant's business.

D28 The selection methodology the Verifier used to choose the Identified Programmes is set out in Appendix C of the Verification report. The Verifier qualified its Identified Programme selections against the criteria set out in Schedule G4(2) and G4(3) stating that:

D28.1 it was restricted to a maximum of 20 projects and programmes out of a total of 47 so its review of the full capex portfolio especially was limited;

D28.2 safety was a key driver for much of the proposal, so it was important to focus on those fleets that were directly relevant to safety such as the poles, crossarms, conductors, protection, LV enclosures and zone substation equipment;

D28.3 the major growth projects only contribute 4% to the combined total capex and opex expenditure over the CPP period so the two largest growth capex projects were selected;

D28.4 Aurora's move from a reactive to preventative maintenance approach indicated that these programmes should be reviewed along with vegetation management opex; and

D28.5 Aurora was proposing a significant uplift in systems and staff to improve its asset management, so programmes such as ICT capex, SONS opex and people costs were reviewed.

D29 The Verifier reviewed the following capex projects and programmes:[263]

D29.1 poles ($47.9 million)

D29.2 crossarms ($38.3 million)

D29.3 overhead distribution conductors ($28.1 million)

D29.4 overhead low-voltage conductors ($19.6 million)

D29.5 low-voltage enclosures ($9.0 million)

D29.6 protection ($9.3 million)

D29.7 zone substations, which included transformers, indoor and outdoor switchgear ($41.9 million)

[263] The Verifier also reviewed the Riverbank zone substation upgrade project, but this was withdrawn from the CPP proposal by Aurora and deferred until RY27.

D29.8 consumer connection capex ($22.6 million)

D29.9 IT capex ($12.2 million)

D29.10 Arrowtown 33 kV ring upgrade ($5.4 million)

D30 Given the 20 identified project and programme restrictions in our IMs, the Verifier only reviewed 66% of the capex portfolio and 92% of the opex portfolio.

D31 One submitter considered that, given the Verifier's limited review of the capex programme and conclusion that only 63% of total capex met the expenditure objective, it was not confident in the extent of the review.[264]

D32 We considered that, for a variety of reasons, the remaining projects and programmes in the capex proposal (34% of the total capex) needed to be reviewed to some extent rather than just accept this project and programme expenditure as meeting the expenditure objective. These reasons included:[265]

D32.1 Aurora is at a low level of asset management maturity, has poor asset data systems and limited understanding of the condition of its assets;

D32.2 the material price impact this CPP will have on Aurora's customers and the significant consumer concerns about this; and

D32.3 the Verifier's comment that during the verification process a large proportion of Aurora's project and programme documentation, expenditure justifications and modelling had to be produced on request so there will likely be value in scrutinising the remaining unreviewed capex.

D33 For these reasons we decided to test the remaining unreviewed capex in the proposal, which amounted to 34% ($122.3 million) of the capex proposal and not just accept this for approval.

We tested the Verifier report against the requirements of Schedule G – Terms of Reference for verifiers when we reviewed the proposed capex programme

D34 We relied on many aspects of the Verifier's findings in reaching our draft decisions about whether expenditure in the capex programme has met the expenditure objective.

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[264] 1-50 "Submission on Aurora Energy's CPP Issues paper" (27 August 2020)

[265] In our consideration of the Powerco CPP proposal in 2017, only 11% of the capex proposal remained unverified (a combination of reviewed capex not meeting the expenditure objective and unreviewed capex) mainly because Powerco definition of its capex programmes allowed greater Verifier review coverage.

D35 The Verifier's report contained a comprehensive assessment in each of the 10 capex projects and programmes (identified programmes), and the Verifier's views of compliance with Schedule G requirements were consolidated within its written review material. [266,267]

D36 We carried out a review of the Verifier's report to test the verification findings against the clause by clause requirements of Schedule G, where this was relevant to the Identified Programmes.

D37 We tested the verification report in a top-down (Table D3- Limb 1) and a bottom-up (Table D4 - Limb 2) manner. The Limb 1 top-down review focussed on those aspects of the Schedule G requirements that affect all aspects of the capex forecast in a CPP proposal, such as the policies and planning standards used by Aurora and the approach to prioritisation, demand forecasts, cost estimation methods including contingencies, procurement efficiency and deliverability.

D38 The Limb 2 bottom-up review focussed on, at an individual project and programme level for each of the verified Identified programmes, whether the top-down frameworks had been applied in practice. Accordingly, the bottom-up review includes additional project and programme specific requirements such as replacement modelling and model inputs, forecast reasonableness testing and expenditure relationships with opex and other capex projects.

D39 In our Limb 1 top-down review of the Verifier's report we tested to what extent the Verifier had:

D39.1 provided an opinion on whether the policies and planning standards relied upon by Aurora were of a nature and quality required for the capex forecast to meet the expenditure objective;[268]

D39.2 provided an opinion on whether the capex forecasts were prepared in accordance with the policies and planning standards at an aggregate level and for each capex category;[269]

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[266] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020 Schedule G – Terms of Reference for Verifier's

[267] Farrier Swier "Verification Report – Aurora Energy CPP Application" (8 June 2020) Appendix B.4 p.149.

[268] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020 s G5(1)(a)(i) and (ii).

[269] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020 at s G5(1)(b).

D39.3 provided an opinion on the reasonableness of the key assumptions relied on by the CPP applicant, how these were developed and applied and their impact on the actual and forecast capex;[270]

D39.4 provided an opinion on the approach used to prioritise capex projects over time including the application of that approach for the next period;[271]

D39.5 reported findings on the project and programme capital costing methodology and formulation, including unit rate sources, the method used to test the efficiency of unit rates and the level of contingencies included for projects;[272]

D39.6 reported conclusions on cost control and delivery performance for actual capex, including overall deliverability of work covered by the capex categories in the next period;[273]

D39.7 reported conclusions on the efficiency of the proposed approach to procurement;[274]

D39.8 tested whether the forecast of capital contributions was reasonable and consistent with other aspects of the CPP proposal, in particular, the capex forecast and the forecast demand data provided in accordance with clause D6;[275]

D39.9 provided an opinion on whether the key assumptions, key input data and forecasting methods used in determining demand forecasts were reasonable; and whether it was appropriate to use the demand forecasts resulting from these methods and assumptions to determine the capex forecast;[276]

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[270] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020 s G5(1)(a)(iii) and G5(1)(c).

[271] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020 s G5(1)(d)(iv).

[272] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020 s G5(1)(d)(v).

[273] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020 s G5(1)(d)(viii) and G5(1)(e).

[274] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020 s G5(1)(d)(ix).

[275] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020 s G7.

[276] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020 s G8(1).

D39.10 provided an opinion as to the key assumptions, input data and forecasting methods used in determining demand forecasts were reasonable; and whether it was appropriate to use these to determine the capex and opex forecasts;[277]

D39.11 used several assessment techniques to test the CPP proposal material and explain why particular techniques were used and why others were not;[278]

D39.12 listed the information that was relied on in the verification process;[279]

D39.13 identified information that was omitted or incomplete and the impact this had on the Verifier's review;[280]

D39.14 identified what additional information may be necessary to complete the review of the proposal;[281]

D39.15 explained why it has selected the identified programmes in accordance with clause G4(1);[282]

D39.16 provided a list of key issues that it considers we should focus on and specifed information that would assist us in our assessment of the proposal;[283]

D39.17 identified any other information held by the CPP applicant that would assist us in our assessment of the proposal.[284]

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[277] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020 s G8.

[278] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020 s G9(1) and G9(2).

[279] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020 s G11(a).

[280] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020 s G11(b)and (d).

[281] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020 s G11(c).

[282] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020 s G11(e).

[283] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020 s G12(a) and (b).

[284] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020 s G12(c).

D40 Finally, the Verifier in its review must conclude with an opinion on whether the capex portfolio meets the expenditure objective.[285] If not, it must identify:

D40.1 if further information was required and, if so, what type of information is required;

D40.2 which of the forecast capex programmes might warrant further investigation by us; and,

D40.3 what type of assessment might be most effective.

D41 In our Limb 2 bottom-up review of the Verifier's report we scrutinised several of the Identified Projects and Programmes and tested to what extent the Verifier had:

D41.1 tested that the policies and planning standards were applied appropriately, and if policies regarding the need for, and prioritisation of, the project or programme were reasonable and had been applied appropriately;[286]

D41.2 tested the process undertaken by the CPP applicant to determine the reasonableness and cost-effectiveness of the chosen solution, including the use of cost-benefit analyses to target efficient solutions;[287]

D41.3 provided an opinion on the approach used to prioritise capex projects over time including the application of that approach for the next period;[288]

D41.4 tested the impact on other cost categories including the relationship with opex, and links with other projects;[289]

D41.5 identified if the project or programme should be included as a contingent project or part of a contingent project;[290]

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[285] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020 s G5(2).

[286] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020 s G5(1)(d)(i) and G5(1)(d)(ii).

[287] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020 s G5(1)(d)(iii).

[288] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020 s G5(1)(d)(iv).

[289] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020 s G5(1)(d)(vi) and G5(1)(d)(vii).

[290] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020 s G5(1)(d)(x).

D41.6 provided an opinion as to overall deliverability of work covered by the capex categories in the next period;[291]

D41.7 provided an opinion on the reasonableness and adequacy of any asset replacement models used to prepare the capex forecast including an assessment of the inputs used within the model, and the methods the CPP applicant used to check the reasonableness of the forecasts and related expenditure.[292]

We consider the Verifier's capex review findings are robust

D42 Following Aurora's submission of its CPP proposal on 12 June 2020, we have critically reviewed the verification report and the techniques and methods the Verifier has used to test Aurora's proposal against the requirements of Schedule G. This review included a two-day workshop with the Verifier on 25-26 June 2020 to test the Verifier's findings and to seek clarification of report material.

D43 We are pleased with the rigour of the Verifier's analysis of Aurora's capex programme and consider its review to be thorough and undertaken to a high standard. The Verifier identified several areas for us to investigate and also made some key observations which we summarise in our bottom-up capex project and programme review.

[291] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020 s G5(1)(e).

[292] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020 s G5(1)(f).

Table D3 Review of Verifier's analysis against Schedule G capex requirements – Top-down review (Limb 1)

Schedule G requirement	Schedule G topic	Key conclusions of Verification in meeting Schedule G requirements
G5(1)(a)(i), (ii) and G5(1)(b)	Policies and planning standards.	• The Verifier tested capex policies and planning standards including those that were the key drivers for expenditure. • These policies and planning standards were also tested at the project and programme level to assess whether they had been applied appropriately and supported meeting the expenditure objective. • The Verifier concluded that Aurora's current policies and planning standards for most capex programmes have generally led to efficient forecasts but that these are presently at a low level of maturity. • Aurora has management processes in place that support the present policies and planning standards, but these are not yet fully documented. • The AMP has been used as a source of policies and planning standards and a reference source to standards used; this has been supported by staff experience. • The Verifier concluded that the efficient application of AMP was limited by data availability and data quality and recommended Aurora develop data standards documentation; this will assist in optimising investment strategies over the CPP period.
G5(1)(a)(iii) and G5(1)(c)	Key assumptions relied on.	• In its review of the proposal material, the Verifier identified the key assumption used by Aurora, tested these against what it would expect to see from a prudent electricity lines company, reviewed the method used to develop these assumptions, assessed how these were applied and considered their impact on the capex forecasts. • The Verifier concluded that most of the assumptions used by Aurora to develop its capex forecast were appropriate and likely to result in a forecast that meets the expenditure objective. • The Verifier also identified that some of the assumptions used were not reasonable which resulted in Aurora over-forecasting some capex. • Key issues identified included that: Aurora could not calculate its residual risk when carrying out investment to meet safety obligations; criticality as it affects prioritisation was not yet factored into forecasts; efficiencies over the period were not yet apparent; units rates used; and there was no apparent linkage between forecast capex and opex.

Schedule G requirement	Schedule G topic	Key conclusions of Verification in meeting Schedule G requirements
G5(1)(d)(iv)	Approach used to prioritise capex projects.	• The Verifier identified that many of the renewal's expenditure forecasts are based on asset age-based survivor curve analysis overlaid with a network risk framework to identify intervention prioritisation; this is a reasonable approach given Aurora's present asset management maturity. • For some programmes, investment need was aligned with risk management framework which identifies investment priority based on several factors such as a combined assessment of asset health and criticality, work bundling, and resourcing. • Much of the renewals programme is driven by safety considerations and these investments have been prioritised over non-safety driven investments. • The Verifier has identified that an economic framework has not been used to prioritise safety driven expenditure though and states this is an area of development for Aurora. • The Growth and Security and Consumer Connection projects are prioritised based on demand projections which define need date; Covid-19 considerations have amended need date assumptions with tourism driven projects de-prioritised in the proposal.
G5(1)(d)(v)	Capital costing methodology, unit rate sources, their efficiency and project contingencies.	• The Verifier identified that Aurora's cost estimation processes were not well-developed and recommended a range of improvement initiatives. • Aurora has no unit rate custodian or defined process for changing unit rates and work programme building blocks that feed into cost estimates; the Verifier recommended that a process for this be included in the asset management system. • Unit rate bottom-up reviews also needed to be regularly carried out to improve project and programme cost estimation. • Aurora's building blocks models need to reflect standard assumptions to enable benchmarking against other electricity lines companies and industry; post-project reviews also needed to be carried out to test cost estimate accuracy. • The Verifier tested numerous project and programs and found Aurora had not included any explicit cost contingencies in its cost estimations; Jacob's review benchmarked unit rates to ±30% accuracy. • Aurora has introduced a new Field Services Agreement (**FSA**) framework to ensure that, for many projects and programmes, contracting costs will be more efficient.

Schedule G requirement	Schedule G topic	Key conclusions of Verification in meeting Schedule G requirements
G5(1)(d)(viii), and G5(1)(d)(ix)	Cost control, delivery performance, and procurement efficiency	• The Verifier states that the Aurora management team has gained recent project delivery experience and changed its service delivery model; incentive arrangements for contractors have been introduced into new FSA arrangements to improve efficiency. • Governance arrangements appear consistent with other electricity lines companies - there are specific committees and governance groups overseeing spending decisions and tracking overall performance against budgets; new project management tool Sentient will assist in managing and tracking projects. • The Verifier reviewed Aurora work programmes, capacity required to deliver efficiently, and service requirements for contractors to deliver efficiently and concluded these were reasonable and consistent with GEIP. • Aurora has a challenging work programme but has plans to 'levelise' this over the CPP period to maintain contractor work which should improve delivery efficiency. • The Verifier identified that resource constraints due to other electricity lines company work programmes have not been considered by Aurora though. • Procurement efficiencies have been lightly tested by the Verifier although Aurora new FSA arrangements should improve work programme delivery efficiencies; external review by Jacobs about likely unit rates for assets should improve asset procurement outcomes; Verifier concluded these strategies were reasonable and consistent with GEIP.

Schedule G requirement	Schedule G topic	Key conclusions of Verification in meeting Schedule G requirements
G5(1)(e)	Deliverability	• The Verifier was generally positive about Aurora initiatives and processes to manage delivery and maintain efficiency. • Aurora's experience with its rapid risk mitigation expenditure delivery programme since 2017 has seen it improve its contracting model, introducing new incentive arrangements to ensure that the service provision from the market remain competitive and to improve service delivery outcomes. • There is no comment about how Aurora will maintain specific project or programme cost control and what specific cost control mechanisms are in place at a project or programme level. • The Verifier states that Aurora's approach to deliverability appears well considered and discussions with new and existing service providers are well advanced. • The Verifier provides several improvement initiatives that Aurora could use to ensure deliverability of the work programme is maintained such as tracking asset replacement volumes, having real-time visibility of project and programme completion percentages, and costs incurred.

Schedule G requirement	Schedule G topic	Key conclusions of Verification in meeting Schedule G requirements
G5(2)(a)	Expenditure objective met or further information required	• The Verifier identified aspects of the proposal that met the expenditure objective such as: - Aurora staff expertise has been used to develop sound plans, business cases for growth projects, and renewals models in most cases; these comply with the policies and planning standards; although not well-developed this has not generally impacted the proposal; - forecasting models are sound and not inappropriate; - cost comparison process using service providers is good practice; - work 'levelisation' and resourcing is reasonable; stated aim to use of criticality to prioritise work will help manage safety risk; - procurement strategy seems appropriate; - assumptions made are mostly reasonable. • The Verifier identified aspects of the proposal that did not meet the expenditure objective such as: - business cases for the two growth projects reviewed do not support EO; reliability costs too high; - lack of asset condition data has impacted development of risk management in decision making; - lack of asset data and risk input tools resulted in over-forecast in LV enclosures and under or over-forecast in OH conductor and crossarms programmes; - establishing asset class performance measures could have resulted in better understanding of residual risk and assisted in decision making; - some LV enclosure and crossarm unit costs are overstated; - South City 11 kV zone substation work is premature; - Ski field connections uncertain due to Covid-19 effects. • Given a main driver of the proposal is safety, the Verifier concluded that Aurora could have better expanded on incipient safety risk, how the ALARP principle had been used, and what level of residual risk it had accepted.

Schedule G requirement	Schedule G topic	Key conclusions of Verification in meeting Schedule G requirements
G5(2)(b) and (c)	Expenditure objective met or further assessment by us and what type of assessment	• The Verifier provided clear directions on where we might focus our review attentions and the type of review we might carry out, namely: - test business cases for growth projects, their demand forecasts used, discount rates, Value of Lost Load (VoLL) and options considered; - risk assessments - consider that network renewals programmes should be supported by risk assessment eg for low-voltage enclosures, high-voltage and low-voltage overhead conductor; - transformer renewals - review the Aurora renewal model and how condition data informs the asset health modelling leading to overstated forecasts; test Smith St and South City transformer investment timing; - zone substation renewals - test need for 11 kV switchgear at South City as it could be deferred; - performance measures - we could implement measures to target residual risk understanding; - cost escalators - we could test the cost escalators used with an independent party; and - improved management systems - we could receive updates about improved asset management systems.
G7	Forecast of capital contributions	• The Verifier reviewed the model, inputs and assumptions used to forecast capital contributions, compared the forecast capital contributions to historical, and tested justifications for any change in contribution policy. • The Verifier concluded that using a fixed contribution was a reasonable approach but that the target rate had not reflected recent experience and may be over-estimating contributions. • NZ electricity lines company contribution rate policies range from 0% contribution to 100%; Aurora proposed 60% contribution rate which may be too high. • While Covid-19 effects have been included in the forecast of likely consumer connections, the forecast is not based on ICP or household growth or economic activity which is inconsistent with other aspects of the CPP such as demand forecasting to support growth and security capex. • We consider that the Verifier adequately tested Aurora's approach to capital contributions and resulted in us investigating some aspects of this further.

Schedule G requirement	Schedule G topic	Key conclusions of Verification in meeting Schedule G requirements
G8	Demand forecast assumptions, forecast method and use	• The Verifier reviewed the models, inputs, assumptions, and computer code used to forecast Aurora's demand and the proposed demand growth was compared to historical demand. • The impact the demand forecast would have on the capex and opex forecasts was identified and explanations for its use sought. • The Verifier concluded that while the approach used to develop the demand forecast was not unreasonable the forecast levels are too high given the Covid-19 effects. • Aurora amended its proposed investments as a result of Covid-19 but not the forecast demand levels. • The Verifier identified several key modelling issues Aurora may want to address in the future, and we may wish to comment on these in our decision. These include not using GDP growth and relying on historical demand trends to predict future growth, overstated peak demand effects, and weather normalisation.

Schedule G requirement	Schedule G topic	Key conclusions of Verification in meeting Schedule G requirements
G9	Assessment techniques	• The Verifier used a range of techniques to test the proposal such as process benchmarking to support a qualitative review of Aurora's asset strategy planning, demand forecasting, project or programme options and sensitivity analysis, risk assessment processes, anddeliverability approaches against GEIP. • Primary assessment techniques included asset strategy process review to validate renewal model methods, quality of input data and model integrity. • Sensitivity on expenditure forecasts of various Aurora models (selected renewal programmes and growth projects) to different assumptions and scenarios was tested; alternative models were developed to assess validity of planned and unplanned reliability forecasts. • Industry unit expenditure rates were used to validate Aurora forecast unit rates for a range of renewals asset classes. • Assessed Aurora's base-step-trend forecast of opex expenditure (i.e. SONS, people costs and network maintenance opex categories) and ICT expenditure using high level benchmarking. • Carried out process reviews to test efficiencies or inefficiencies of scale or different procurement methods to set forecast unit cost rates against historical. • Tested salaries for SONS and People cost categories and step change justifications. • Capex and opex benchmarking used to test whether Aurora's forecast renewals and opex categories appear to be efficient or inefficient compared to its peers. • Critiqued forecast expenditure and whether it reflected efficiencies or inefficiencies due to factors such as scale, different procurement methods or realistic/actual unit rates/escalation rates. • Tested the demand methodology developed for and used by Aurora, the inputs used, and outputs generated; the capital contribution forecast method, inputs, and outputs; reviewed the labour and material cost escalator forecasts. • Significant benchmarking analysis was carried out using Australian information and appears to have been shared with the applicant - confirmed at the Verifier workshop.

Schedule G requirement	Schedule G topic	Key conclusions of Verification in meeting Schedule G requirements
G11 and G4	Completeness and Selection of identified programmes	• Comprehensive review of completeness provided by Verifier; findings in IV Report Chapters 1 to 6 and App D details any omissions, incompleteness, or insufficiency of information; consolidated opinions in Section 7.1. • Chapters on service measures, levels and quality standards, capex, opex, demand, capital contributions and contingent projects identified information considered omitted, incomplete or insufficient, the nature of any information required to fulfil the information requirement in question, and the extent to which the omission, incompleteness or insufficient of information impaired the verification process. • The process and criteria for selecting the identified projects and programmes in accordance with Clause G4(1) is explained and includes considerations of expenditure: - materiality as a proportion of total expenditure or whether step change in expenditure is greater than 30%; - key driver such as a key risk faced by Aurora or a key driver of the CPP proposal and most closely aligned to the rationale for Aurora's intended CPP application; - links to a proposed quality standard variation; - was considered necessary to provide an opinion on whether Aurora's expenditure forecasts satisfied the expenditure objective, were prepared in accordance with Aurora's policies and procedures, or promote the long-term interests of consumers; - had the greatest impact on prices faced by consumers over the next regulatory period; - uncovered interactions between proposed capex and opex.
G12(a) and (b)	Overview of key issues and areas of focus	• The Verifier set out key findings in Chapters 1-6 and Appendix D. Consolidated opinions provided in Section 7.1; Appendix I lists information provided by Aurora relied upon in preparing the verification report, including information used that was not provided (e.g. ID published by us). • Chapters on service measures, levels and quality standards, capex, opex, demand, capital contributions and contingent projects identifies information considered omitted, incomplete or insufficient, the nature of any information required to fulfil the information requirement in question , and the extent to which the omission, incompleteness or insufficient of information has impaired the verification process. • The Verifier identified areas for further analysis by us and additional information we may require, to carry out in our review.

Table D4 Review of Verifier analysis against Schedule G requirements – Bottom-up (Limb 2) review of poles programme

Schedule G requirement	Schedule G topic	Key conclusions of Verification in meeting Schedule G requirements
G5(1)(d)(i) and G5(1)(d)(ii)	Policies and planning standards applied appropriately.	• The Verifier states that in general "Aurora Energy is at an early stage of its asset management maturity journey. It has sound policies on asset management, risk framework and safety at a corporate level that aspires for industry best practice with respect to asset renewals". • The poles strategy mostly set out in the AMP material; the Verifier states that the "AMP 2018-28 provides a good outline of Aurora Energy's approach to managing its network assets and mitigate its risk profile". • The AMP also "refers to collection of standards throughout the asset life cycle management steps". • The Verifier is satisfied that the AMP material provides effective direction to manage this fleet of assets.
G5(1)(d)(iii) and G5(1)(d)(iv)	Process to determine reasonableness and cost-effectiveness of solution, including use of CBA. Approach used to prioritise capex projects.	• Pole fleet asset health estimates based on wood pole survivor curve analysis based on asset age; survivor curves based on historical pole testing results; Verifier concluded that while this was a reasonable way to predict forecast replacement volumes it might over-forecast need. • Asset criticality framework used to identify key pole replacement locations, and this informs replacement prioritisation; Verifier concluded that this approach was reasonable given the asset condition understanding in this fleet. • The Verifier identified that safety risk mitigation not fully supported by analysis; difficult to judge safety risk vs mitigation cost balance; given asset management maturity though Aurora's risk averse approach reasonable at this point. • The Verifier concluded that "the availability of quality asset data would have enabled us to objectively assess the ALARP position (i.e. cost vs. safety benefit balance) of this renewal proposal; given the lack of asset data to accurately assess the criticality profile and to form a view on the reasonableness of the forecast expenditure, we benchmarked Aurora Energy's forecast with industry peer businesses with similar risk profile". • We will be targeting asset data processes in our Information Disclosure requirements in our decision to ensure that Aurora's data systems improve; good asset data and data systems are the foundation of prudent asset management.

Schedule G requirement	Schedule G topic	Key conclusions of Verification in meeting Schedule G requirements
G5(1)(d)(vi) and G5(1)(d)(vii)	Impact on other cost categories and links with other projects.	• The Verifier identified that pole replacements were also coordinating with the crossarm replacement programme stating that "The scope of work in this programme also includes replacing the associated crossarms with every pole and a proportion of overhead distribution equipment (switchgear and pole top distribution transformer) based on condition assessment. Therefore, this expenditure should be viewed together with cross-arm and overhead distribution equipment renewal programmes". • Additionally, the overhead and low-voltage conductor replacement programme "incorporates replacing a proportion of poles per km and the cost of this proportion embedded in the re-conductoring unit cost. Some of these would be replaced based on condition (i.e. potentially double counting with this renewal programme) and accordingly has been reconciled and adjustments have been appropriately made" • There was no comment made by the Verifier about the impact on the opex categories following asset replacement in this and many other renewals asset classes. • Aurora has assumed some opex efficiencies occur due to asset replacements and affect maintenance opex forecasts from RY22 and SONS and People forecasts from RY24.
G5(1)(d)(x)	Whether capex should be contingent project	• None of this renewal's capex programme was contingent expenditure or part of a contingent project; identified that some growth and security could be considered contingent.
G5(1)(e)	Deliverability of capex programme	• High profile pole failures in Aurora's network resulted in significant programme of pole replacement and reinforcement prior to CPP; CPP Application notes that 20% of pole fleet (about 12,000) replaced or reinforced since 2017. Inspections have risen to about 1,000 a month to address safety concerns. • Aurora has taken steps to engage three contractors to deliver its work programme with additional approved contractor resources available for tender or other work. • The Verifier identified that while Aurora has not analysed potential constraints due to external market factors in its region competing for similar resources, it is confident of delivering all of its proposed expenditure. • Aurora has advised that forecasts have been shared with the key service providers through their respective FSA governance meetings and has received informal responses indicating that there is enough available internal and subcontract staff available. • The Verifier recommended that "contractors should provide a formal response, detailing their resource capability for the next RY, and any strategies they have in place to mitigate any resourcing risks"

Schedule G requirement	Schedule G topic	Key conclusions of Verification in meeting Schedule G requirements
G5(1)(f)(i)	Reasonableness of capex model inputs	• The basis of the Aurora forecast is using pole survivor curves and asset age profile to forecast replacement volumes. • Aurora has assumed a five-year asset life for wood poles and five-years for concrete poles and the Verifier concluded that this was not unreasonable. • The WSP wood pole modelling approach was to take a representative sample of the wood pole fleet to define asset condition related to age and pro-rate this using probability distribution curves across the asset fleet; the Aurora modelling approach is similar and has resulted in similar forecast outcomes. • The Verifier considers that the pole modelling carried out by Aurora is one of the more robust models developed by Aurora Energy in that it uses historical asset failure and replacement records. • To define specific asset replacements the Verifier notes that "Pole location in high public traffic areas determines the criticality rating assigned to poles, with such a rating driven by safety considerations only; other consequences such as lost load, customers impacted, planning by outage zone, network configuration etc are not presently considered by Aurora Energy" • The Verifier concluded that “model logic is robust and based on a sound underpinning asset strategy given the asset management maturity context. The model inputs are not unreasonable, especially for the wood poles fleet whereby the distribution profile is based on past replacement experience rather than an estimate of expected life and an estimated statistical distribution"
G5(1)(f)(ii)	Methods used to check capex forecasts	• The Verifier concluded that: - model logic is robust and based on a sound underpinning by asset strategy; - the model inputs are not unreasonable, especially for the wood pole fleet; - investment need aligned with the risk management framework and asset management principle; - the timing of the need is consistent with the imperative to mitigate safety risks associated with the ageing wood pole population; - improving data accuracy and completeness in the future should be achieved by continuing with Aurora’s current asset strategy (inspection, maintenance, and replacement) – this will improve forecast accuracy.

CPP capex proposal key issues and observations commentary

Background

D44 This section is a short observation summary of the Aurora CPP capex proposal and the key issues identified that affect all the capex projects and programmes. It can be read prior to our capex project and programme analysis and discusses key areas of a CPP proposal such as:

- D44.1 asset management;
- D44.2 investment need and modelling;
- D44.3 cost estimation and efficiency – cost estimation processes;
- D44.4 cost estimation and efficiency – unit rates;
- D44.5 cost estimation and efficiency – Field Services Agreements;
- D44.6 cost estimation and efficiency – quality assurance;
- D44.7 safety investment and our role;
- D44.8 the Clyde/Earnscleugh transformer outage and N-security zone substation sites; and
- D44.9 top-down capex efficiency adjustment.

D45 We have carried out a programme by programme bottom-up review focusing on the drivers for investment, summarising the key conclusions of the Verifier analysis of CPP proposal material and our own analysis. We have also referenced the WSP report where this is appropriate as the findings of WSP support much of Aurora's proposed safety related expenditure.

D46 The Verifier and our analysis is focussed on the expenditure relevant to the evaluation criteria set out in clause 5.2.1 of the electricity lines company IMs; specifically, that:

- D46.1 the CPP proposal data, analysis and assumptions are fit for purpose (clause 5.2.1(c)); and
- D46.2 that the CPP proposal capex meets the expenditure objective (clause 5.2.1(d)).

D47 The expenditure objective is defined in the electricity lines company IMs and fundamentally has two limbs in meeting the expected demand at appropriate service standards while complying with applicable regulatory obligations. These two limbs are:

D47.1 is the expenditure what a prudent electricity lines company would require i.e. that the investment need and investment timing have been reasonably demonstrated; and

D47.2 are the costs for a prudent electricity lines company associated with the expenditure efficient?

D48 We have tested this proposal thoroughly and concluded that the capex proposal has been well-prepared and largely justified by Aurora, subject to some projects being considered contingent, and some downward adjustments to account for consistent application of Aurora's efficiency improvements.

D49 After review of the Verifier's report and the additional analysis carried out, we have been able to reach conclusions in this draft report that most of the proposed capex portfolio ($315.6 million - 88% of proposed amount) is prudent and efficient.

Asset management

D50 In reviewing the CPP Proposal and the Verifier's report, it is clear that Aurora are starting from a low level of systematised asset management maturity, and that in the past it has relied heavily on staff experience to drive asset management inputs, rather than having systems and processes in place where staff experience would refine the outputs.

D51 The Verifier identified this issue in its review of the Aurora proposal for many renewals' asset classes and made the following point on asset management:[293]

Aurora Energy is at an early stage of its asset management maturity journey. It has sound policies on asset management, risk framework and safety at a corporate level that aspires for industry best practice with respect to asset renewals. The AMP 2018-28 provides a good outline of Aurora Energy's approach to managing its network assets and mitigating its risk profile. It translates the intention of its policies to management plans that guides operational asset management activities. It refers to a collection of standards throughout the asset life cycle management steps.

D52 Previously Aurora's AMPs have been very detailed and clearly articulated knowledge of many of the assets and asset issues. However, they appear to have been reliant on staff knowledge of the network and its assets.

[293] Farrier Swier Consulting Pty Ltd and GHD Pty Ltd "Verification report - Aurora Energy CPP application" (8 June 2020) Appendix C.3.3 p.160, Appendix C.4.3 p.166, Appendix C.5.3 p.172, Appendix C.6.3 p.178, Appendix C.7.3 p.185, Appendix C.8.3 p.193, Appendix C.9.3 p.199, Appendix C.10.3 p.204, Appendix C.11.3 p.211.

D53 Asset management driven by staff experience is at the low end of asset management maturity because there is so much key person risk with no repeatable systems in place.

D54 Ideally staff experience should not drive the inputs into an asset management, rather it should refine the outputs of an asset condition-based/asset criticality informed asset management framework, that is systematised, repeatable and consistent over time.

D55 The other key asset management issue that Aurora needs to address is asset data and the lack of asset condition understanding in many asset classes. Asset condition data is considered a foundational aspect of mature asset management.

D56 Aurora is very open about the low maturity of its asset management processes stating that it is "starting from a comparatively low base", and that its proposal that addressing this is one of the proposals key drivers: [294,295]

> Our plans will: - continue implementing good practice asset management with improved capability, including continuing to improve the asset data we need for sound decision-making.

D57 Aurora has stated this lack of asset management maturity and data knowledge as a key reason for its three-year CPP proposal rather than a five-year CPP. However what Aurora does know well is its asset age profiles.

D58 Aurora has taken a repex modelling approach to forecast replacement volumes beyond known asset condition and safety issues. Repex modelling is a statistical approach that forecasts quantities of assets to be replaced in the absence of asset condition data. This is a reasonable forecasting approach to take when asset condition data is limited but asset age is understood.

D59 In some asset classes, Aurora has demonstrated a high level of asset management understanding such as the zone substations portfolio which includes zone substation transformers and indoor/outdoor switchgear. Investment need has been based on a full asset health and criticality analysis which is exemplary asset management.[296]

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[294] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), Executive Summary and Section 1.7 p.32 available at https://comcom.govt.nz/__data/assets/pdf_file/0027/218592/Aurora-Energys-CPP-application-12-June-2020.pdf

[295] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), Section.4.1 p.42.

[296] In the outdoor switchgear asset class, asset health models are completed with asset criticality understanding in development – this will not affect investment need, only replacement prioritisation.

Investment need and modelling

D60 The key drivers for most of the expenditure in the capex portfolio are to:

D60.1 address known safety issues identified in the WSP report and confirmed in many cases by Aurora;

D60.2 invest in ICT assets and systems to enable better asset management and project delivery;

D60.3 replace assets that have reached end-of life and that are presenting known reliability issues; and

D60.4 address asset obsolescence.

D61 The remaining investments are related to capacity upgrades in the network for growth and security reasons, new connections, and the need to relocate existing assets due to third party needs, such as roading projects.

D62 Aurora has been innovative in finding solutions to some of its growth and security issues. For example, it has proposed a distributed energy and battery solution in the Clutha region to defer what would otherwise be a significant network upgrade.

D63 Our summary analysis of the capex programmes has quoted issues identified in the WSP report which was the genesis for this CPP. The WSP report is still relevant to this CPP in that it firstly identified specific network and asset safety issues and, secondly modelled the likely quantum of asset replacement problems faced by Aurora.

D64 In our opinion, the WSP report conclusions support Aurora's case for much of the safety investment need, such as:

D64.1 replacement of high-voltage indoor switchgear with 'do not operate' tags due to explosion risk and operational staff safety concerns;

D64.2 replacement of high voltage overhead copper conductor due to a higher than average frequency of conductor failure incidents;

D64.3 the pole and crossarm replacement strategy; and

D64.4 the almost complete revision and renewal of the protection relay fleet and supporting assets, due to the number of protection failure incidents.

D65 Much of Aurora's justification for renewals replacement volumes, beyond known issues, has been supported by repex modelling. Strata pointed out, in its review of the unreviewed verification capex, that while using repex modelling is a valid approach when you have very little asset condition information, model outputs need to be refined failure rate data.

D66 In the CPP models reviewed by Strata, it appears that Aurora has not modified the repex models with known failure rate data, and that the statistical approach it has taken to forecast replacement forecast volumes has tended to over-forecast replacement need.

D67 The Verifier made a similar observation for the renewals programmes it reviewed, but in its recommendations to us, erred on the side of caution and agreed with Aurora's proposed expenditure in key asset classes like poles, crossarms and overhead conductors, due to safety and reliability considerations. We have agreed with adopting a risk averse approach for many asset classes.

Cost estimation and efficiency

D68 We received some written submissions regarding Aurora's plans, how it manages costs and the efficiency of its works delivery. At some of our stakeholder engagement sessions there was considerable feedback and concern about Aurora's cost controls and how efficient Aurora had been and will be in delivering work on its network.

D69 One submitter considered Aurora had been "proven at being extremely inefficient at executing almost everything" [297]. Richard Healey stated that "Aurora's effort to return the network to a safe standard has been slow, wasteful and poorly targeted."[298]

D70 In our review we have tested how Aurora has addressed cost efficiency issues. Project and programme capex costs and how they are estimated and managed on delivery, are common considerations in each of the proposal capex projects and programmes and these are discussed below.

D71 There are three aspects of the proposal related to cost efficiency that we have tested with Aurora and analysed:

[297] 1-50 "Submission on Aurora Energy's CPP Issues paper" (27 August 2020).

[298] Richard Healey "Submission on Aurora Energy's CPP Issues paper" (27 August 2020).

D71.1 the Verifier issue regarding Aurora's cost estimation processes. Are the cost estimation processes robust; are building block costs regularly updated and reviewed; and are external sources used to update unit rates used in asset building blocks;

D71.2 how Aurora ensures it has competitive prices for the work it needs to do on its network; and

D71.3 work efficiency and quality assurance of work completed on Aurora's network.

Cost estimation and efficiency – cost estimation processes

D72 One of the key observations made by the Verifier was that the cost estimation processes underpinning Aurora's capex proposal needed to improve. Specifically, Aurora needed to develop;[299]

D72.1 systematised processes for asset unit rate estimates that feed into the costing building blocks models;

D72.2 building blocks models and definitions - ideally these should be developed such that they "include any inherent assumptions e.g. for a unit of 1 km length of overhead line, there should be a definition of the number and type of poles, location (urban/regional/rural), and conductor size. This would make cost benchmarking more straightforward and conclusive, as any variances found during the benchmarking process can then be identified";

D72.3 processes to ensure that asset unit rate cost estimates and building blocks costs are regularly reviewed and audited, and to ensure that these remain fit for purpose on an ongoing basis;

D72.4 systematic processes to ensure that asset unit rate cost estimates and building blocks costs are updated and managed through a single point of control and in an environment that is accessible to staff; and

D72.5 processes to investigate reasons for project and programme final cost differences compared with cost estimates.

D73 We tested Aurora's commitment to addressing the Verifier concerns about its cost estimation processes. Aurora responded with a clear plan to improve in this area stating that:[300]

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[299] Farrier Swier Consulting Pty Ltd and GHD Pty Ltd "Verification report - Aurora Energy CPP application" (8 June 2020), Section 6.5.3.

[300] RFI Q007 - Capex cost estimation processes.

D73.1 a systematic process for unit rate estimates will be implemented. To ensure these rates are applied appropriately Aurora will further specify the scope (including assumptions, inclusions, and exclusions) of the building blocks that feed into cost estimates. This is expected to be completed in Q3 of RY21;

D73.2 building blocks will be further developed to include more detailed characteristics and assumptions. This will include assumed asset quantities, type and sizes, and the potential use of locational multipliers. These will be available during the CPP period;

D73.3 process changes will be implemented to ensure that unit rates, individual project cost estimates, and building blocks are reviewed against initial estimates and any relevant variations. This feedback will be used to update unit rates and refine building block definitions. This is expected to begin in RY22;

D73.4 a more formal, systematic process to manage price-book definitions, update rates and assumptions, and implement defined change control will be developed to ensure rates are updated in a robust and transparent manner. This is expected to be in place prior to RY22; and

D73.5 cost estimate accuracy will be driven by the cost estimation policy/guideline and cost variation tolerances will be applied as appropriate.

D74 Apart from a solid commitment to a cost estimation accuracy range, Aurora appears intent on improving its unit rate and building blocks processes in line with the Verifier observations. In our suite of proposed enhanced Information Disclosure requirements, that will accompany this CPP proposal draft decision (see Attachment I), we propose update information about Aurora's progress in this area, during the CPP period.

D75 Aurora should continue to focus on project and programme cost estimation accuracy. Aurora's assertion that it will apply cost variation tolerances 'as appropriate' gives it too much discretion to be inefficient and means future expenditure forecasts may be less reliable.

D76 A cost accuracy range of ±10% is not an unreasonable accuracy range for this industry particularly for non-volumetric project work. In its review of Transpower's RCP3 proposal the Verifier made the observation that in the Australian utility sector it is not unusual for a utility to be targeting a ±10% cost estimate accuracy, and a detailed investigation is triggered if this variance is exceeded.[301]

D77 As part of the RCP3 reporting requirements we placed on Transpower, we included a 53ZD notice to report on how its cost estimation processes were tracking against actual project and programme costs. We propose to consider a similar disclosure requirement on Aurora to gain insight into how accurate its project and programme cost estimates are progressing over the CPP period (see Attachment I).

Cost estimation and efficiency – unit rates

D78 In support of its proposal, Aurora had its asset unit rates, sample project cost estimates and some historical project costs tested by Jacobs, an independent engineering consultancy.[302] Jacobs reviewed all of Aurora's network asset categories to confirm that individual asset costs were reasonable and recommended changes where there were differences.

D79 In its review, Jacobs used engineering estimates it had developed for recent distribution network projects, and reviews of other electricity lines company costs for the construction of substations, lines, and cables. Jacobs noted in its report that it:[303]

> …. recently undertook a comprehensive review of a NZ EDB's cost estimation processes, which compared the original project estimates with the final capitalised project costs. This review found that there had been significant cost increases in recent years in both civil and electrical installation costs due to increased capital works within the electricity industry and adjacent industries.

D80 Jacobs concluded in its Aurora review that for most assets, the Aurora and Jacobs estimates were within ±30%. It also identified material cost areas that Aurora needed to address such as cable trenching and installation, zone substation indoor switchgear, and 66 kV auto-transformers.

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[301] Independent Verification Report - Transpower's RCP3 Expenditure Proposal (2020-25) 12 October 2018 p.152 available at https://comcom.govt.nz/__data/assets/pdf_file/0021/91272/Independent-verification-for-RCP3-Terms-of-reference-16-April-2018.PDF

[302] To assist the Jacobs review, Aurora developed sample project cost estimates for a new zone substation, underground cable, and overhead line installations – Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), Section.D.5.7 p.77.

[303] Jacobs Customised Price Path Pricebook review 21 Jan 2020.

D81 In its proposal Aurora discuss the Jacobs cost review and note that:[304]

> This identified some potential refinements and cases where our rates were both greater and less than typical industry rates. We modified our rates to achieve better alignment with some of their benchmarks and finalised the price-book used for our CPP forecasts.

D82 We are reasonably satisfied the Aurora unit rates were adequately tested and are consistent with industry unit rates. However, we note that, while these may be suitable for expenditure forecasting, they do not reflect site specific cost issues and the cost efficiencies that may arise when tendering project and programme work.

D83 We recommend that Aurora regularly update its estimates of unit rates as part of Aurora's cost estimation improvement process.

Cost estimation and efficiency – Field Services Agreements[305]

D84 Aurora has acknowledged issues with its previous contracting arrangement, in that it failed to provide a distinction between the role of service provider and client, specifically that it:[306]

- D84.1 failed to provide the ordinary commercial tensions that should apply in a client-service provider relationship;
- D84.2 provided limited scope to test the contractor's performance through competitive tendering and benchmarking unit costs;
- D84.3 created weak incentives on the contractor to drive efficiency improvements over time; and
- D84.4 provided insufficient focus on customer outcomes and KPIs.

D85 Aurora acknowledged in its CPP proposal that service contracting arrangement conflicts were identified as far back as 2013 when Strata carried out its review of the circumstances of Aurora's 2012 quality standard contravention.[307]

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[304] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), Section D.5.7 p.78.

[305] Note that Aurora's new FSA arrangements will impact both the capex and opex portfolios and are discussed here with a view to discussing this in the Draft Decision reasons paper given the public interest in Aurora's arrangement with Delta.

[306] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), Section M.1 page 240.

[307] Report on the Reliability Performance of Aurora Energy Limited Strata Energy Consulting - 24 June 2013 s 6.1.4 p.39 https://comcom.govt.nz/__data/assets/pdf_file/0025/91681/Stratas-report-on-the-reliability-performance-of-Aurora-Energy-Limited-24-June-2013.pdf

D86 Following a Deloitte review that recommended an organisational separation from Delta, and a recognition that the looming work programme from 2017 onwards was unlikely to be met by a single provider, Aurora sought new service providers. Delta would be retained as a core provider of "fault response, vegetation management, pole inspection, and value-added services (including cable locations, stand-over services and high-load escorts)."[308]

D87 Aurora sought additional service providers to provide "extra capability and capacity to deliver the planned increase in expenditure as outlined in the AMP 2017-2027". Following an Expression of Interest process, Aurora engaged two new service providers with FSAs, Unison for Dunedin and Connetics for the Central region. Aurora implemented its new FSA's in 2019 and this included a continuing arrangement with Delta for core services in both regions.[309]

D88 The CPP proposal and supporting documentation demonstrates that Aurora followed a reasonably robust process to select its service providers and create new FSA arrangements that impact both the capex and opex portfolios. This is a first step in a move away from the single contractor model which is problematic for the reasons outlined above.

D89 Aurora has also put in place arrangements to provide cover should field services providers become capacity constrained for any reason. Other risk mitigations are outlined which appear to alleviate both competency and project and programme deliverability concerns.

D90 Aurora states that its "works programmes will be delivered through a combination of FSA service providers, competitive tendering and panel arrangements". Aurora discusses the balance between the open tender capex work and FSA work stating:[310]

> The open tendered work principally relates to larger projects, such as zone substation rebuild projects, major renewal or growth projects that are typically high value projects. In contrast, the committed spend under the FSA contracts relates to high volume, repetitive work that is more routine in nature. It is expected that our FSA service providers will have sufficient capacity to bid for open tendered works, whilst additional, approved contractors will also be attracted to these projects

D91 The intended capex work programme split for each regulatory year from RY21 until RY30, for the open tendered capex work and the capex work carried out under the existing FSA framework, is shown in Figure D2.

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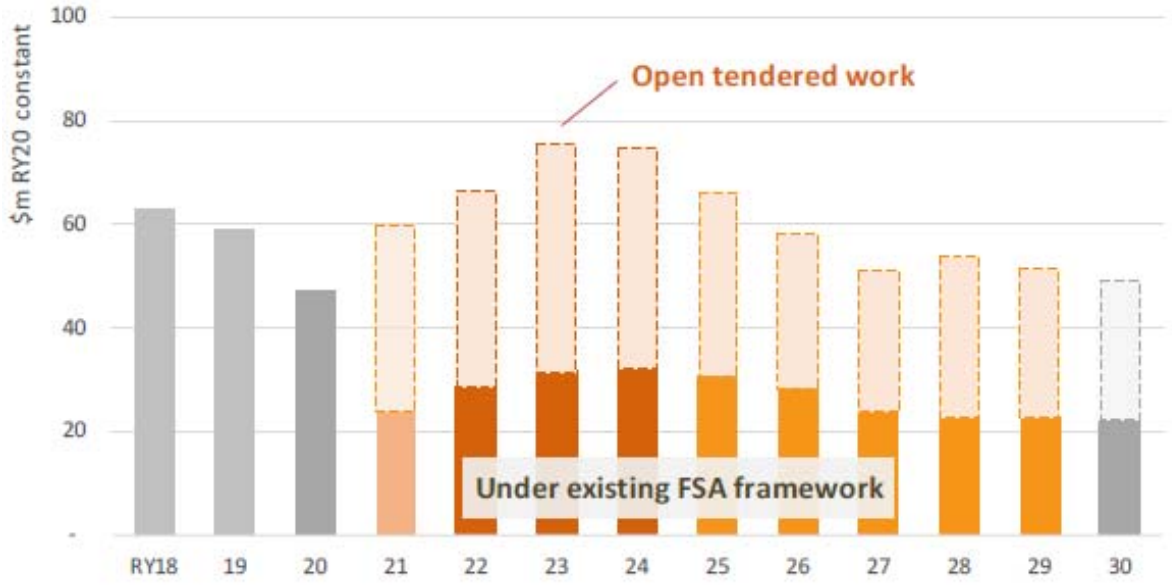
[308] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), Section M.1 p.240.

[309] We have discussed the contracting arrangements relevant to the opex programme in Attachment E.

[310] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), Section M.3 para 963 p.244.

Figure D2 Open tendered and FSA capex[311]



D92 The Verifier also reviewed Aurora's FSA arrangements and processes in its review stating:

> We reviewed the existing FSA set-up for competitive tension provision, arrangement for performance feedback, the visible pipeline of proposed work within the annual committed expenditure (ACE) limit for each FSA contractor and outside the limit (i.e. open tender work) for sustainability, metrics for key performance indicator (KPI) measurements, and the FSA contractors' commitment in maintaining a sufficient level of resources to deliver the work[312].
>
> Aurora Energy has also established a framework for project management and governance, including implementing its new FSA contracting arrangements that include KPIs and other mechanisms to ensure costs are efficient.[313]

D93 We also considered the KPMG Independent Reasonable Assurance report provided to the Aurora directors to test selected project and programme related party opex and capex costs.[314]

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[311] Reproduced from Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), Section M.3, p.243 Figure 116.

[312] Farrier Swier Consulting Pty Ltd and GHD Pty Ltd "Verification report - Aurora Energy CPP application" (8 June 2020), Section 4.5.2 p.72.

[313] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), Section 6.7.2, p.129.

[314] KPMG Independent Reasonable Assurance Report to the directors of Aurora (7 May 2020) available at https://www.auroraenergy.co.nz/assets/publication-articles/20200512-Final-IA-Opinion.pdf

D94 This assurance report reviewed a number capex projects performed by the related party Delta, and found that the gross margins associated with some capex project work, incurred between 2017 and 2020, may not meet the Input Methodology requirement that related party transactions are arm's-length transactions:[315]

D95 The assurance report found that, while the gross margins associated with a $6.7 million development project met the IM requirements, gross margins of the $2.3 million Carisbrook expenditure, incurred between 2017 and 2020, relating to costs incurred in the electrical works at the Carisbrook substation, did not. KPMG stated that:

> Based on the procedures performed the gross margin applied to the Carisbrook capital expenditure in 2019 was 46% and over the project life was 39%. The realised gross margins are materially outside the range of gross margins of comparable businesses operating in the construction and engineering sectors after adjusting for the risk of sampling error
>
> For the related party transactions to be considered at arms-length we calculated that the reported capital expenditure relating to the Carisbrook project for 2019 should be in the range $1.6 million to $1.7 million using the ranges of gross margins from comparable business operating in the construction and engineering sectors; and
>
> As a result, we determined that the gross margin applied to the Carisbrook Capital expenditure services did not meet the criteria of the Information Disclosure Determination.

D96 We also consider that there is possibly more Aurora could do to competitively tender its opex work. Its Interim Asset Services Agreement with Delta from June 2017 indicates a tiered percentage of contestable opex work from 2017 to a maximum of 40% being contestable in the open market by 1 April 2020. This interim agreement appears to only discuss the maintenance opex programmes and we have not seen any commitment in the proposal material to move to a fully contestable model.[316]

D97 In its Vegetation Management Strategy document Aurora confirm that at present Delta is the only provider of vegetation management services but that this is scheduled for review in RY23. Aurora state that "it may prove beneficial to engage further vegetation management contractors across the network if it might improve performance and reduce overall expenditure". However, as the KPMG report concludes there appears to be issues with the related party arrangement with Delta for ongoing minor capex work and possibly more.

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[315] Electricity Distribution Services Input Methodologies Determination 2012 clause 2.2.11.

[316] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), Vegetation Management Strategy AE-AS18-S Section 3.5 p. 9.

D98 In summary, based on our analysis of the CPP proposal and supporting material, and the Verifier review and conclusions, we are satisfied that Aurora processes, procedures and frameworks for ensuring it obtains competitive prices from a range of service providers to support a majority of its capex and opex projects and programmes, are robust and should lead to delivery efficiencies.

D99 However, we consider that there is more Aurora could do to ensure and demonstrate that its related party arrangement with Delta, for ongoing capex and opex work, is efficient and carried out based on the most recent market rates.

Cost estimation and efficiency – Quality Assurance

D100 We also tested Aurora about its plans to ensure that the work completed on its network will be completed to a standard that is considered good electricity industry practice.[317]

D101 Specifically, we asked Aurora to explain how it would maintain and improve its project and programme work delivery quality assurance processes. We asked how it will:

D101.1 ensure that project and programme work is delivered to the budgets assigned to those projects and programmes;

D101.2 ensure that projects and programmes have been installed or implemented to meet industry standards and any statutory requirements, where these are relevant; and

D101.3 ensure that, when work is completed, and that work was carried out to mitigate safety concerns, that the safety issue has been resolved and meets statutory obligations and minimum electricity design standards.

D102 Aurora explained that:

D102.1 its investment in the Sentient Portfolio Programme Management (PPM) tool will allow visibility of project and programme delivery including resource forecasting, risks/issues, and project progress and reporting;

D102.2 works delivery managers will help ensure the successful delivery of all projects and ensure accurate reporting to the Aurora Board. There will be regular reviews of all project and programme work, with assurance processes around reporting, procurement, budget, scope and time control;

[317] RFI Q006 – Quality assurance of capex and opex projects and programmes.

D102.3 a risk management review process has been implemented across all network projects and programmes; a risk review is completed monthly on one or two randomly selected projects and/or programmes; and

D102.4 two quality assurance officers have been employed to randomly audit project and programme work to ensure the completed work meets Aurora's standards, electricity safety rules, regulations, and statutory requirements.

D103 The Verifier also noted that Aurora had established a contractor performance manager role to "support the management of KPIs and oversee service provider and project performance, supported by regional delivery managers and a centralised programming team."

D104 Based on our analysis of the CPP proposal and supporting material, and the Verifier's review and conclusions, we are satisfied that Aurora has plans and processes in place to test that it carries out its project and programme work efficiently, that this work will be consistent with good electricity industry practice, and that it will meet its statutory obligations.

Safety investment and our role

D105 While we are not the safety regulator (Worksafe is the safety regulator), we must determine whether expenditure reflects the efficient costs a prudent supplier would need to meet statutory safety obligations and minimum electricity network design standards. Expenditure that is necessary to meet these obligations and standards is likely to be prudent and we would only be concerned with the investment efficiency.[318,319]

D106 For proposed expenditure that extends beyond the minimum to meet electricity network design and safety standards, which could be termed the discretionary safety expenditure, we would be interested in both its prudency and efficiency. We would expect that a business proposing such expenditure would use an industry accepted risk frameworks to judge cost-effectiveness.

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[318] This includes the general requirement to, so far as is reasonably practicable, ensure the heath of safety of workers and other persons under s36 of the Health and Safety at Work Act 2015.

[319] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020 Limb (b) of the definition of 'expenditure objective' at clause 1.1.4.

D107 Safety risk and cost trade-offs ideally should be made using industry accepted risk frameworks like ALARP.[320] Such frameworks are especially useful when proposing and demonstrating that proposed safety expenditure, which is not tied to explicit regulatory requirements, is likely to be reasonably practicable and economic, and not when the costs become grossly disproportionate to the risk to be mitigated. A framework like ALARP has many uses.

D108 In our Issues Paper package, we discussed the safety driver that underpins a significant portion of the Aurora CPP proposal and asked for views about whether Aurora should prioritise improving its understanding of safety risks.

D109 Some submitters have noted that safety investment prioritisation is important with one submitter noting that it is difficult to know if safety has been prioritised and that public safety depends on this. Another submitter wanted to see Aurora prioritise safety expenditure ahead of other expenditure drivers.[321,322]

D110 We agree with these submitter views and in our assessment of the CPP proposal we have clearly noted where Aurora has identified that it is investing to address safety issues. Indeed, this is one of the main drivers of the CPP Application.

D111 Since the WSP State-of-the-Network review was completed, Aurora has been providing us with update reports about how it has been addressing the explicit safety issues on its network. This includes reporting on the pole replacement and reinforcement programme to mitigate high risk-area pole failures, the oil-filled cast iron pot-head replacements to mitigate public safety risks and protection system upgrades to ensure safe operation of the network under faulted conditions.

D112 The Verifier commented on the WSP report in its review and concluded that:

> We also reviewed Aurora Energy's proposed expenditure for the identified projects and programs against the network risks identified by WSP in its review – and conclude, based on the information provided to us, that that expenditure appears to adequately address the relevant risks identified by WSP. The residual risk levels appear, either explicitly or implicitly, to be consistent with the 'as low as reasonably practicable' (ALARP) principle.[323]

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[320] ALARP is a term often used in the regulation and management of safety; and the ALARP principle is that the residual risk shall be reduced as far as reasonably practicable. The Health and Safety at Work Act 2015 clause 22 defines the meaning of reasonably practicable in the NZ context.

[321] 1-50 "Submission on Aurora Energy's CPP Issues paper" (27 August 2020)

[322] Southern Generation Limited Partnership "Submission on Aurora Energy's CPP Issues paper" (20 August 2020)

[323] Residual risk is the risk that remains after an investment has been made to mitigate a known risk.

D113 The Verifier confirmed that Aurora had explicitly considered the ALARP framework for some asset fleets (such as the zone substations assets) but used an age and condition-based strategy for other fleets. For many of the renewals programmes the Verifier concluded that Aurora was "unable to objectively articulate and demonstrate the ALARP balance achieved by the proposed expenditure for each renewal program and consequently there is some potential for risk averse forecasts or the opposite".

D114 Prior to Aurora submitting its CPP application we signalled our expectation that, given safety is a key driver for the CPP, then Aurora should be able to identify, analytically quantify, prioritise, and demonstrate that safety expenditure was both prudent and efficient. However, we could not see this evidenced in the CPP application.

D115 Aurora's 'Public Safety Management' document discusses initial risk (without controls) and residual risk (with controls), so it appears that Aurora considers it can quantify the difference between these two risk outcomes on an analytical basis.[324]

D116 The Risk Control and Management Standard (RCMS) document details how Aurora applies risk management to its asset fleet and in Section 2.3 states that 'The risk management processes described in this RCMS are to be applied at all levels to achieve the desired risk outcome for Aurora Energy by ensuring that safety risks are controlled to ensure the residual safety risk is as low as is reasonably practical'.

D117 So, while Aurora's supporting documents and standards appear to demonstrate an analytical understanding of how a risk framework such as ALARP is applied, the proposal material did not comment on this analysis. The CPP application does not mention ALARP at all. Aurora does say though that in this CPP it will "will make improvements in our underlying data, risk management systems and fully embed our expanded contracting and delivery frameworks".

D118 We tested Aurora further about how it had identified and mitigated asset specific safety risk, locational safety risk, and asset fleet safety risk prioritisation asking:[325]

D118.1 asset fleet safety risk – explain how Aurora has identified that there is a safety risk in its asset fleets given that its asset condition information is generally lacking for many of them. Please use the pole and ground mounted distribution transformer expenditure proposals to demonstrate how quantified safety risk has informed decision making.

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[324] Aurora CPP Application Public Safety Management Standard AE-HS08-S and Risk Control and Management Standard AE-HS02-S.

[325] RFI Q012 - How Aurora has identified, analytically quantified, prioritised and mitigated safety risks.

D118.2 specific locational safety risk – demonstrate how Aurora has quantified the safety risk and is able to judge that the expenditure to mitigate that safety risk is cost effective. Provide an example where:

D118.2.1 a specific safety risk has been identified in a key asset class or location;

D118.2.2 how that safety risk has been analytically quantified; and

D118.2.3 how Aurora judges that the mitigation expenditure is cost-effective and reduces the specific safety exposure in line with the ALARP principle stated in the 'Risk Control and Management Standard' document.

D118.3 asset fleet safety risk prioritisation – explain how Aurora has generally identified safety risk in an asset fleet and how it is able to demonstrate risk prioritisation into the future. Using the indoor switchgear asset class as an example, please demonstrate how Aurora has identified the relative safety exposures and how and why expenditure to mitigate these is prioritised now and into the future.

D119 Aurora responded effectively saying that it is important to distinguish between "short-term interventions and medium-term forecasting" and that "we are not in a position to formally quantify safety risk." [326]

D120 Aurora's RCMS is very detailed and provides a good framework for the monetisation of various risk exposures at a high level. However, it does not fully demonstrate how engineers and analysts can take the next step to judging whether safety risk mitigations are economic. This would only be possible by introducing event return periods so that a safety event risk cost per annum can be calculated and compared, on a net present value basis, with the capital cost of the mitigation.

D121 After our review of the Verifier's report and CPP Application, we consider that the safety investments Aurora has been making since the WSP report, and proposed safety investments in the CPP, appear to constitute those investments to meet statutory obligations and minimum design standards.

D122 However, Aurora has not yet turned its mind fully to using a cost-benefit framework like ALARP to quantify safety risks and use these to justify mitigations beyond the required minimum.

[326] RFI Q012 - How Aurora has identified, analytically quantified, prioritised and mitigated safety risks.

D123 This observation is not limited to the Aurora CPP proposal. We consider that the electricity lines company sector appears to have a very limited understanding about how a tool like ALARP could assist it in identifying key safety risks in its network, whether it is cost effective to implement safety risk management strategies that go beyond the minimum required by statute, and how safety risks can be ranked.

D124 However, in the electricity industry, statutory obligations, asset and network design and operational standards have been developed for a reason. While they are largely deterministic in nature, they contain many operational, installation design practice and maintenance strategies that have developed based on empirical evidence, and work to maintain safe and reliable networks.

D125 In this regard we can agree with Aurora that an asset that is clearly unsafe and where its continued operation may affect staff or public safety, should be replaced. The main issue is that Aurora's approach to forecasting replacement volumes in many of its renewals programmes, beyond known issues, has used the repex approach without factoring in asset failure rates or a quantified safety risk calculation method.

D126 The Verifier took the view that a risk-averse approach was appropriate and agreed with Aurora's forecasts in many cases. Strata in its advice has suggested that Aurora has been over-forecasting because the asset age based repex analysis has not been supported by failure rates or, if safety is a driver, a clear identification of the safety risk that would justify bringing forward investment ahead of failure related need.

D127 We agree with Strata's view about Aurora's repex modelling application for certain asset classes where a risk averse approach is not supported by safety considerations. Ideally repex modelling in these asset renewals programmes should be informed by actual asset failure rate data to modify forecast replacement volumes.

Age may sometimes be a good predictor of asset condition, often it is not [327]

D128 Given that safety is likely to be a consideration in Aurora's investment decision making for the foreseeable future, we have decided to require that Aurora disclose how it is developing its processes in this area, specifically we will be requiring that Aurora disclose its:[328]

D128.1 processes to improve the asset risk framework to inform risk-based decision-making the risk framework ideally should be driven by the asset management system with staff experience informing decisions but not driving these decisions; and should contain considerations of reliability

[327] Richard Healey "Submission on Aurora Energy's CPP Issues paper" (27 August 2020).

[328] See Attachment IX for a description of our proposed Information Disclosure requirements for Aurora.

risk, environmental risk, high impact low probability (**HILP**) risk and safety risk;

D128.2 processes to improve risk cost trade-offs using an industry accepted condition-based risk framework. A risk quantification approach is especially required where safety investment is proposed that goes beyond investments required to meet statutory safety obligations and industry design standards (the discretionary safety expenditure); and

D128.3 regular reporting that describes the current level of business safety risk and actions that have been taken to quantify, control and mitigate safety risk within acceptable limits (eg using ALARP - as low as reasonably practicable).

D129 These proposed disclosure requirements will demonstrate how Aurora is improving its investment decision making in this area and provide comfort to customers that network safety issues are being addressed systematically and economically.

The Clyde/Earnscleugh transformer outage and N-security zone substation sites

D130 On 14 June 2020, there was a high-profile power outage on Aurora's network which resulted in approximately 1200 homes and businesses in Clyde losing power for nine hours during extremely cold weather conditions (reportedly -9.9 degrees Celsius).[329]

D131 The outage was caused by the failure of the transformer at the Clyde/Earnscleugh zone substation. The 16 June 2020 Otago Daily Times article that reported this incident, stated that in the past there was a back-up transformer at the site to be used in the event of a transformer outage.

D132 However, Aurora stated in the article that the second transformer at Clyde/Earnscleugh was never intended as an operational back-up, and that its mobile substation is the means by which it provides operational back-up within 4 hours of an outage at N-security sites like Clyde/Earnscleugh.

D133 When the Otago Daily Times article was published, Aurora's mobile substation unit was operational and was to remain on site until the Clyde/Earnscleugh transformer was repaired. The article also noted that customers would be receiving a $50 credit as outage compensation.

D134 We received feedback on the Clyde outage by email in response to the Aurora CPP application at our stakeholder engagement sessions and as submissions to our Issues Paper package.

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[329] www.odt.co.nz/regions/central-otago/frozen-and-furious-after-power-failure

D135 One submitter noted that only three out of 13 zone substations have a back-up transformer in the Central Otago region and that this was different for the zone substations in Dunedin.[330]

D136 A submission from Item 42 1-50 "Submission on Aurora Energy's CPP Issues paper" (27 August 2020) contended that zone substations and their back-up supplies needed to be prioritised, that the lack of back-up supply at Clyde needed to be addressed immediately, we needed to insist that maintenance be performed on crucial back-up systems, and that there should be reporting mechanisms in place for this purpose.[331]

D137 We received information at one of our stakeholder engagement sessions that indicated that the original plan for the Clyde/Earnscleugh site was to convert it to 11 kV which would provide greater network capacity at the site.

D138 Based on the submitters' information, and the high public interest in the Clyde outage, we sought additional information from Aurora about its long-term plans to provide back-up there. We asked Aurora about the 11 kV conversion and if this alternative was part of its CPP planning.[332]

D139 Aurora provided further information about its plans for the Clyde/Earnscleugh site, stating that it plans to rebuild the Clyde/Earnscleugh zone substation to 11 kV and install a higher rated transformer and new circuit breakers by 2024-2025. The existing 11 kV/6.6 kV transformer will continue to be used to supply the township at 6.6 kV with a new back-up supply transformer also being progressed. Aurora considered that this arrangement will meet its security of supply guidelines while deferring the cost of upgrading the Clyde township to 11 kV.

D140 We further tested Aurora on its N-security zone substation security strategy asking:[333]

D140.1 with reference to Clyde/Earnscleugh, if there were any other N-security zone substation sites in the Aurora network that have back-up transformers that are being removed, have already been removed, or are not being considered for use in the future as back-ups, should the main transformers fail; and

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[330] 0543 "Submission on Aurora Energy's CPP Issues paper" (18 June 2020).

[331] 1-50 "Submission on Aurora Energy's CPP Issues paper" (27 August 2020).

[332] RFI Q061 - Clyde/Earnscleugh.

[333] RFI Q058 - Models to support asset replacement forecasts.

D140.2 if Aurora is removing zone substation back-up transformers, or leaving them in place, but not considering them as being part of its operational approach to restore supply in the event of a transformer failure, provide the policy or policies that underpin this strategy.

D141 Aurora firstly explained how it defines the different levels of transformer supply security at its zone substation sites as:

D141.1 N security sites: a single transformer is on site with no back-up transformer. In this category, Aurora includes sites with partial back-up only. In some cases, Aurora's mobile substation can be installed to provide full or partial back-up;

D141.2 N-1 security (switched) sites: a single transformer is on site with an ability to use the surrounding 6.6 kV or 11 kV network to provide full back-up from a neighbouring zone substation;

D141.3 N-1 security sites: a dual transformer is on site where either transformer is enough to carry the full load in the event of a transformer outage.

D142 Regarding its N-security zone substation transformer strategy Aurora elaborated stating that:

D142.1 Outram zone substation is the only other site (in addition to Clyde/Earnscleugh) that historically had been 'N-1 security' but following a transformer failure is now 'N-security' but that it is installing network back-up there to provide N-1 switched supply security which is lower cost than installing an additional transformer;

D142.2 Aurora is not planning to remove or reduce the number of transformers at any other sites, although there are sites where supply security margins have reduced and transitioned from N-1 switched to N-security;

D142.3 of the 14 zone substation sites that have had reducing supply security margins, 7 are presently able to be backed up using Aurora's mobile substation;[334]

D142.4 only zone substation sites with peak demand above 15MVA are planned to have full N-1 supply security;

D142.5 zone substation sites with peak demand below 15MVA (except for those below 1MVA) should be fully restored following an outage within 2 hours for metropolitan areas and 4 hours for rural areas;

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[334] These 14 zone substation sites include Lauder Flat, Omakau, Remarkables, Coronet Peak, Dalefield, Outram, Clyde/Earnscleugh, Ettrick, Roxburgh, Lindis Crossing, Queensbury, Cardrona, Camphill and Berwick. The 7 sites that can be backed up presently with the mobile substation are Ettrick, Roxburgh, Lindis Crossing, Queensbury, Cardrona, Camphill and Berwick.

D142.6 for the seven N-security sites that are currently unable to be backed-up with the mobile substation, Aurora is developing reinforcement plans or a mobile substation bay at the site to improve or remedy the level of back-up supply.

D142.7 contingency plans are also being developed for each site including provision of spares, prewritten operating orders, and community communication plans.

D143 We are satisfied with Aurora's response about its N-security site plans but note that no time frames for the initiatives were provided. We consider Aurora needs to present this information to the wider community to alleviate the obvious concerns noted in submissions and from feedback we have received.

D144 Finally, we consider that, given the known asset reliability issues whether Aurora has considered the economics of a second mobile substation for use at its N-security sites.

Top-down capex efficiency adjustment

D145 In its CPP application, Aurora states that it plans to make material capability and capacity improvements over the CPP period and expects that efficiencies will result from its planned business improvements. Aurora states that efficiency adjustment factors have been applied to three of its capex programmes for the following reasons:[335]

D145.1 contractor productivity: efficiencies are expected from increased competitive tension and scale efficiencies that could be realised by the uplift in work and increased competitive tension due to FSAs;

D145.2 works coordination: efficiencies are expected in the medium term as Aurora moves from addressing spot risks to fleet risks;

D145.3 improved decision-making; efficiencies are expected from improvements in asset management, including expanded network analytics using better data, investment optimisation and condition-based risk management; and

D145.4 improving capability: efficiency gains are expected as systems and processes mature, and systems and processes are aligned with plans for ISO55000 accreditation. IT investments will better optimise expenditure on renewals through improved information.

[335] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), Section D.5.8 p.78.

D146 We reviewed the CPP proposal material and noted that cost efficiencies have been included "to reflect efficiency gains from asset management improvements, increased competition amongst our service providers and better works delivery processes."[336]

D147 While Aurora has modelled cost efficiencies to occur from RY27 onwards these have only been discussed in three of Aurora's capex renewal's programmes namely the low-voltage enclosures, poles and crossarms renewals. [337]

D148 It is not clear why Aurora consider that only these three programmes would benefit from the efficiencies described above, while none of the other capex programmes would similarly benefit.

D149 Additionally, Aurora's capex forecast model appears to only include efficiencies occurring in two capex renewals programmes and not three as stated in the proposal material, but we could not see any reason why Aurora's proposed efficiency adjustments were not applicable to all capex programmes and projects equally.

D150 We have applied a top-down 5% efficiency adjustment to all the renewal's programmes not already subject Aurora's efficiency adjustments, and to the consumer connection, asset relocations, network growth capex projects, and minor capex.

D151 The proposed 5% efficiency adjustment across the CPP period is consistent with Aurora's proposed incremental efficiency adjustments that it has modelled in the crossarms and low-voltage enclosures renewals programmes, starting from 1% in RY22 to 10% in RY26.

D152 We compared these efficiency gains with the gains forecast by Powerco and Transpower in their expenditure proposals. Powerco, in its CPP factored in capex efficiency adjustments occurring in the last two years of its CPP period of 3.6% and 7.2% respectively due to asset management improvements, purchase cost and work programme efficiencies. Transpower, in its RCP3 proposal, discusses its efficiency adjustment in base capex of 5%, mainly due to deliverability initiatives.[338,339]

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[336] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), Section E.4.3 p. 91, Section E.5.3 p.95 and Section E.8.10 p.122.

[337] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), Forecast Tracker – 12 June submission.

[338] Powerco CPP Application Main Proposal (12 June 2017), p.xiii.

[339] Transpower RCP3 Proposal (November 2018), Section 3.4 p. 59.

D153 We consider that the 5% top-down efficiency adjustment is not inconsistent with adjustments identified by other businesses. This is particularly so given Aurora is starting from a low asset management maturity base level and has yet to see the value of tendering the majority of its capex project and programme work. A 5% adjustment is consistent with the size of Aurora's own view of an efficiency adjustment in its own capex programmes as discussed above.

D154 Finally, the Verifier, in its review of selected renewals programmes also noted that in many renewals' programmes, Aurora's forecasting approach would tend to over-state investment need particularly toward the end of the five-year CPP period.

D155 Similarly, Strata's review of selected capex renewals programmes noted that Aurora's repex model survivor curves did not factor in actual asset failure rate data and would tend to over-forecast investment need. Strata concluded that this was an additional factor in support of a top-down capex efficiency adjustment.

Capex Project and Programme Analysis

Capex renewals – Poles

Background

D156 Aurora is proposing to invest $47.9 million over the CPP period (see Figure D3) in its pole replacement and renewals programme. Aurora considers that this expenditure is necessary to address a prolonged period of under-investment.

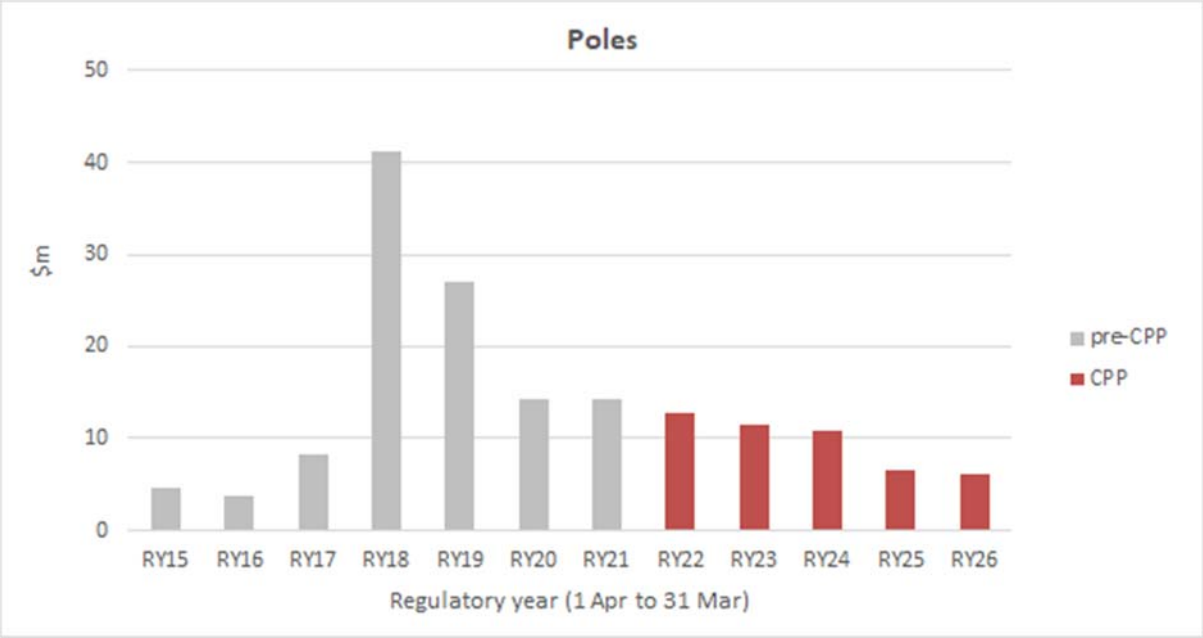
D157 There have been several high-profile pole failures in Aurora's network. Since 2017 Aurora has embarked on an accelerated pole replacement plan. This accounts for the significant uplift in expenditure in 2017-2018 and 2018-2019.[340, 341,342]

[340] www.odt.co.nz/regions/central-otago/alarm-after-night-pole-failures

[341] www.odt.co.nz/regions/central-otago/investigations-start-after-pole-falls-school

[342] www.odt.co.nz/regions/central-otago/mayor%E2%80%99s-faith-aurora-shaken-pole-failures

Figure D3 Pole renewals capex between 2014-2015 and 2025-2026



D158 Prior to the CPP application the WSP State-of-the-Network review identified that while the pole replacement programme had slowed declining performance that started in 2013, the pole fleet in general was still in poor condition and that there was still an elevated level of safety risk.[343]

D159 WSP identified that between 2015 and 2018 there was a total of 88 public hazard incidents relating to pole failures in Aurora's network, with 6 of these classed as serious hazards.[344]

What the CPP Application says

D160 In its CPP proposal Aurora notes that:[345]

D160.1 20% of the pole fleet (about 12,000) has been replaced or reinforced since 2017;

D160.2 pole inspections have also risen to about 1,000 poles a month to address safety concerns;

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[343] WSP "Independent review of electricity networks - Final report - Aurora Energy" (21 November 2018), Report Executive Summary p.x

[344] WSP "Independent review of electricity networks - Final report - Aurora Energy" (21 November 2018), Table 7.2 p.48. WSP classified serious hazards as those "where the text field indicated that there was an elevated risk to the public such as conductors remaining live on the ground or starting a fire (protection failed to trip or was delayed) or poles falling on roads or footpaths".

[345] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), Executive Summary and Section E.4 p.86.

D160.3 since the pole inspection and testing programme was initiated, it has identified end of life poles at a faster rate than it has been able to remediate;

D160.4 in conjunction with survivor curve analysis to identify likely replacement volumes there is a backlog of poles that need replacement. Based on condition data this backlog totals 2,100 poles;

D160.5 a single unit rate for replacement cost is used in the forecasts, which reflects the costs of actual pole replacements undertaken since the FSAs were established in RY19.

What the Verifier said

D161 The Verifier's analysis concluded that:[346]

D161.1 several operational standards and forms related to pole design, installation and condition assessment were reviewed and Aurora should maintain the currency of these as it progresses through its asset management maturity journey;

D161.2 it is a reasonable approach to forecast replacement volumes using asset age survivor curve analysis with intervention prioritisation using a network risk framework;

D161.3 there are clear data limitations from inspection practices. More accurate methods of testing will offer opportunities to review failure rate data and the possibility of using and refining criticality (consequence) assessments to optimise inspection strategies in the future;

D161.4 Aurora has satisfactorily established the need for the pole renewals and to complete the current backlog of replacements; the timing of the need is consistent with the imperative to mitigate the safety risks associated with the ageing wood pole population;

D161.5 there are linkages with other expenditure programmes such as the overhead distribution and LV conductor replacement programmes where pole replacements are carried out where necessary. Aurora has sufficiently reconciled these to ensure there is no double-counting;

D161.6 there was no specific comment on the unit rates for this asset class, although Aurora's pole replacement costs are well-tested, based on the recent programme of replacements; and

[346] Farrier Swier Consulting Pty Ltd and GHD Pty Ltd "Verification report - Aurora Energy CPP application" (8 June 2020), Appendix C.3 p.158-164 and Appendix D.3 p.342-355.

D161.7 no aspect of this programme was contingent or part of a contingent project.

D162 The Verifier also identified a range of key issues that Aurora and us may wish to consider including that:

D162.1 Aurora had not considered wood pole reinforcement in its renewal strategy and forecast and that there was potential to re-establish this from RY25 onwards; this should follow the proposed engineering review which Aurora intend to carry out;

D162.2 the need for most of the forecast volume, including renewal backlogs, is driven by safety risk which has the potential to be overstated when compared with actual incidents;

D162.3 the availability of more advanced asset data would have enabled us to more objectively assess the ALARP position (i.e. cost vs. safety benefit balance) of this renewal proposal;

D162.4 Aurora should undertake further studies to inform whether the pole testing program should be refined (e.g. by using new testing technology).

D163 The Verifier concluded that it could not fully verify the proposed poles renewals expenditure and that $3.3 million remained unverified, based on the assumption that approximately 20% of the wood pole fleet could be reinforced and not replaced from RY25 onwards.

RFI – Pole reinforcement [347]

D164 Following the Verifier conclusions, we were interested to further understand the viability of the pole reinforcement programme, and asked Aurora to:

D164.1 discuss the extent to which Aurora had engaged, or plans to engage, independent engineering expertise to review its pole reinforcing programme;

D164.2 provide a summary of how much has been spent on the pole reinforcing programme to date;

D164.3 summarise the expected life extensions that the pole reinforcing programme has provided so far; and

D164.4 discuss whether pole reinforcing is an economic mitigation.

[347] RFI Q009 – Capex programme areas of investigation recommended by the Verifier.

D165 Aurora responded stating that:

D165.1 it has engaged an independent engineering assessment to better understand the foundation strength of reinforced poles and may consider expanding the scope of this review based on its findings;

D165.2 $6.7 million (constant 2020) has been invested in the pole reinforcing programme as of 1 April 2020;

D165.3 the reinforcement service provider has provided assurances that the work will provide a life extension of 15 years. As the reinforcement programme began only four years ago, a definitive view on the exact life extension is unknown. The asset health calculations have assumed a one-off five-year life extension; and

D165.4 the economics of pole reinforcement, pending an engineering view of viability, is set out in the Pole Reinforcement Attachment; it is economically viable for an eight-year pole replacement deferral.[348]

D166 We were satisfied that Aurora's approach to suspending the programme is supported by analysis and that this may become a viable alternative to pole replacement later in the CPP period. This supports the Verifier conclusion.

RFI – Consumer poles [349]

D167 One area the Verifier recommended we investigate was whether it was appropriate for the remediation costs of the consumer pole population to be included within the regulated cost base.[350]

D168 The Verifier noted that Aurora has forecast to inspect 4,000 consumer-owned poles that it estimated were installed prior to 1984 by RY27. Ownership of these poles will then be handed over to consumers as part of its Consumer Owned Poles Strategy.

D169 We tested Aurora using an RFI about how it is approaching consumer owned poles to ascertain how it understands its statutory obligations, how capex and opex costs have been treated, the cost recovery of those costs, and whether capex associated with consumer-owned poles has been assigned to the Regulated Asset Base (RAB).

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[348] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), 200516 Pole Reinforcement note.

[349] RFI Q026 - Consumer poles.

[350] Farrier Swier Consulting Pty Ltd and GHD Pty Ltd "Verification report - Aurora Energy CPP application" (8 June 2020), Appendix C.17 Table C.38 p.268-269.

D170 Aurora confirmed in its response that, it had not included any capital expenditure related to consumer owned poles in its CPP proposal, and that in the past three years it had capitalised a small amount of these when it was unclear if ownership should be handed back to the consumer.

D171 We were satisfied with Aurora's response that consumer owned poles capex was not part of this CPP. However, Aurora note that a total of $6.5 million of corrective and preventive maintenance opex related to consumer owned poles is part of the CPP proposal. This is discussed in the Aurora CPP opex attachment in Attachment E.

Issues Paper package submissions received

D172 We received submissions and feedback at our stakeholder engagement sessions that Aurora's cost estimates for pole replacement were in excess of other electricity lines companies and that this issue needed "immediate comparison with other line companies".[351]

D173 We reviewed the Jacob's report of Aurora's asset unit costs for this asset class. The original Aurora estimate for pole replacement prior to the Jacobs review was 10% lower than the Jacob's estimate, which is an up-to-date electricity price-book based on recent projects and a review of other electricity lines company costs. On this basis we consider that Aurora's unit cost estimates for poles appear to be consistent with NZ industry costs for poles.

D174 We received a detailed submission about poles and Aurora's pole reinforcement programme from Richard Healey.[352]

D175 In his submission Richard Healey makes several observations about pole reinforcement that question its efficiency and efficacy, including that:

D175.1 pole reinforcement, as used by Aurora, does not return a pole to a position where it is certified to be capable of accepting design loads;

D175.2 the Verifier conclusion that Aurora could return to pole reinforcement in RY25 and RY26 may not be realistic, and does nothing to address pole foundation issues. In fact, pole reinforcement could weaken the foundations of the pole;

D175.3 there is no manufacturer test data to support claims that pole reinforcement improves foundation strength, and no certification to demonstrate foundation strength meets the requirements of AS/NZS 7000;

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[351] 0464 "Submission on Aurora Energy's CPP Issues paper" (13 August 2020).

[352] Richard Healey "Submission on Aurora Energy's CPP Issues paper" (27 August 2020).

D175.4 the Verifier claim that, because other electricity lines companies reinforce their poles, the technique is effective, is unsupported;

D175.5 there is no supporting data that pole reinforcement extends asset life by 15-20 years;

D175.6 the Deuar pole test, which is widely used in the NZ electricity lines company sector, has no test data supporting its efficacy and anecdotal evidence suggests different staff obtain different pole strength results using the approach;

D175.7 Aurora does not have the people, techniques, or systems to adequately gauge the state of their pole assets; and

D175.8 the rapid pole replacement programme targeted the "cheapest and quickest to address" poles and not the "poles that represented greatest risk".

D176 These are interesting questions which we do not consider have been addressed in the proposal. We invite Aurora to comment on these matters in its submission on this draft decision. Especially concerning are the statements about the actual foundational strength following pole reinforcement and the efficacy of Deuar testing.

D177 In its 16 May 2020 Pole Reinforcement Attachment, Aurora states that it does not forecast pole reinforcement being continued because there are low volumes of applicable candidate poles, and that there are now reservations about the "technical aspects of nailing, particularly with respect to foundation strength". Aurora also presented analysis that suggests pole reinforcement is economic if it extends pole life by 8-9 years when compared to replacement.[353]

D178 Aurora is presently seeking external engineering advice to test the effect of pole reinforcement on foundation strength. At this stage, given the Verifier's view that pole reinforcement is an accepted mitigation strategy in Australia, it is likely that its conclusions about expenditure in RY25 and RY26 are still valid; and we have no information to suggest otherwise given Aurora has tested that the approach is economic. Pending the result of Aurora's engineering review we propose to agree with the Verifier's conclusions unless Aurora can provide information prior to the final decision on Aurora's CPP which suggests pole reinforcement is no longer viable.

[353] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), 200516 Pole Reinforcement note.

D179 On the matter of Deuar testing not being an appropriate means to judge existing pole strength, we do not have any information to suggest that this is not the case, other than to note that it is commonly used in New Zealand industry.

D180 We also received a submission stating that Aurora did not have possum guards on many of its old wooden poles and that without them, possums can climb the pole and cause outages. If so, installing possum preventers seems like a relatively low cost means to improve reliability outcomes.

D181 In its 2020 AMP Aurora identified that during its pole inspection programme, possum guards were missing or needed an upgrade for many of its poles in the network. Consequently, a possum guard retrofit programme was initiated by Aurora.[354] This should address the point raised by the submitter.

Our findings

D182 We have reviewed the CPP Application material and the Verifier's analysis of the pole renewals programme, as well as the State-of-the-Network report that was carried out by WSP prior to the CPP.

D183 We consider that the Verifier's analysis of the pole programme was robust and has sufficiently tested this programme of expenditure against the requirements of the IMs and can be relied upon.

D184 We agree with the Verifier that Aurora has established the need for the quantum of pole renewals and work to address the backlog of replacements.

D185 Since 2017 Aurora has been on an aggressive pole reinforcement and replacement campaign, with 20% of the pole fleet having been either replaced or reinforced. Inspections have also increased, and this has improved Aurora's knowledge of the state of the pole fleet.

D186 Some submitters have suggested that Aurora's pole replacement costs may be higher than the industry average, but the Jacobs review suggests that this is not the case. Richard Healey also questioned pole reinforcement efficacy. Aurora has halted this technique pending an independent engineering review of the technique.

D187 Despite this, we propose to agree with the Verifier that pole reinforcement may be a viable alternative to replacement from RY25 onwards, unless Aurora's engineering review concludes otherwise.

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[354] Aurora Energy "Asset Management Plan - April 2020 - March 2030" (12 June 2020). Section 7.4.3 Table 7.6 p.142.

D188 While the repex modelling approach used by Aurora would tend to over-forecast replacement volumes, the Verifier noted that the timing of the need is consistent with the imperative to mitigate the safety risks, particularly with the wood pole fleet. While we do not disagree with this view, we will be encouraging Aurora to be more explicit about how it quantifies safety risk in future.

D189 The Verifier noted that the safety driven expenditure should be better articulated with condition and performance data that allows for risk assessments. This would also enable objective assessment of the ALARP position (i.e. cost vs safety benefit balance) and better understanding of residual risk.

D190 While we understand Aurora is attending to known safety issues it has been unable to explicitly demonstrate how it has made the distinction between safety expenditure to meet explicit regulatory standards, and the safety expenditure that may be required by the general duty to provide a safe working environment.

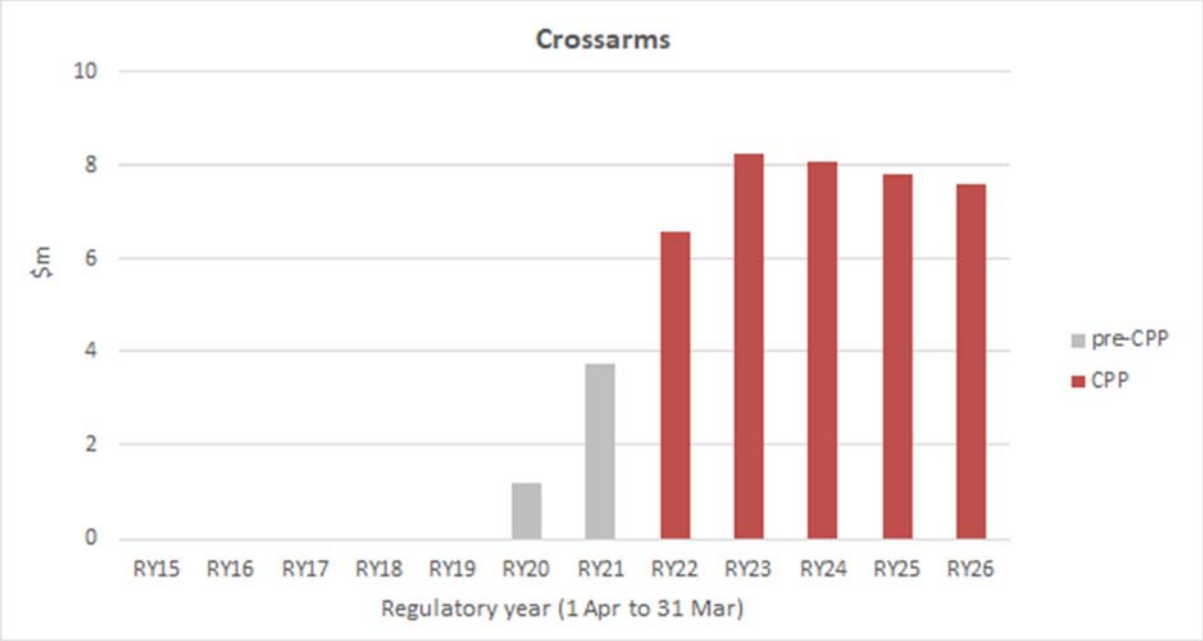
D191 Based on our analysis of CPP proposal material, the RFI responses from Aurora, and the Verifier's review, our draft decision is that the amended amount of $44.6 million for poles renewals capex verified by the Verifier, is likely to be prudent and efficient and meets the expenditure objective, after a 5% capex efficiency adjustment.

Capex renewals – Crossarms

Background

D192 Aurora is proposing to invest $38.3 million over the CPP period (see Figure D4) in its crossarm replacement programme. Aurora considers that this expenditure is necessary because many of its 95,000 crossarms are in poor condition, have exceeded their useful life, and failures may result in safety risks.

Figure D4 Crossarm renewals capex between RY15 and RY26



D193 The WSP State-of-the-Network review also identified crossarms as a key risk in Aurora's network and concluded at the time of its review that:

D193.1 crossarms had not been inspected adequately historically;

D193.2 many of the crossarms tested in its review were in poor condition;

D193.3 many were categorised as high risk due to their location relative to population and the probability of failure; and

D193.4 there was likely to be at least 2,000 that needed to be replaced immediately due to condition, high risk of failure, and the safety implications of any such failure.

D194 WSP identified that between 2015 and 2018 there had been a total of 16 public hazard incidents relating to crossarm failures in Aurora's network, with two of these classed as serious hazards.[355]

What the CPP application says

D195 In its CPP proposal Aurora states that:[356]

D195.1 the majority of crossarms have not been inspected in some years and previously there was no active standalone crossarm renewal programme;

D195.2 poor condition crossarms (or parts of the crossarm assembly such as insulators) may fail, causing pole fires, inadequate conductor clearances or conductor dropping to the ground. Such events would expose the public to fire or electrocution hazards;

D195.3 analysis indicates that 10% of the crossarm fleet is at end of life (classified as H1 asset health indicator) in RY20;[357]

D195.4 it is expected that approximately 40% of the population will need replacement over the next 10 years (comprising assets that presently have asset health indicators of H1 to H3);[358]

D195.5 the forecast volumes have been determined using a repex methodology based on an expected asset life of 55 years and information from the pole inspections programme, rather than using survivor curves because there is no reliable asset condition information available; and

D195.6 unit rates are based on recent historical costs. These costs have been reduced by a small percentage from RY22 to reflect efficiency gains from asset management improvements, increased competition amongst our service providers and better works delivery processes.

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[355] WSP "Independent review of electricity networks - Final report - Aurora Energy" (21 November 2018), Table 7.2 p.48.

[356] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), Executive Summary and Section E.5 p.91.

[357] Asset Health Indicator H1 indicates asset where replacement is recommended from Schedule 15 *Electricity Distribution Information Disclosure Determination 2012* (consolidated April 2018) available at https://comcom.govt.nz/__data/assets/pdf_file/0025/78703/Electricity-distribution-information-disclosure-determination-2012-consolidated-3-April-2018.pdf

[358] Asset Health Indicator H2 means there are end of life drivers for replacement present, and high asset related risk, and H3 means end of life drivers for replacement are present, with increasing asset related risk from Schedule 15 *Electricity Distribution Information Disclosure Determination 2012* (consolidated April 2018).

What the Verifier said

D196 The Verifier's analysis found that:[359]

D196.1 several operational standards and forms related to pole design, installation and condition assessment that also describes crossarms were reviewed; Aurora should maintain the currency of these as it progresses through its asset management maturity journey;

D196.2 the AMP material contains a lot of background material that could be framed as enablers of relevant policies; the Verifier is satisfied that the AMP provides effective direction to manage this fleet of assets;

D196.3 Aurora is presently limited by its asset data availability and quality for crossarms that would otherwise enable it to target investment and risk mitigation measures with much greater precision;

D196.4 the modelling logic, assumptions used and statistical replacement profile that underpin replacement volumes are accepted;

D196.5 Aurora has satisfactorily established the need for crossarms renewals; the underpinning drivers are appropriately identified, the asset condition data limitation described, and the assumption used to support the case has been explained;

D196.6 need is aligned with its risk management framework and asset management principle and the timing of the need is consistent with the imperative to mitigate safety risks associated with the ageing crossarm population;

D196.7 the criticality assessment is used to prioritise the work programme after establishing the expenditure required based on asset health;

D196.8 Aurora provided unit cost benchmarking information from other electricity lines companies, an independent consultant review of the bottom-up estimate, and a contractor rate to support its proposed unit cost estimate; and

D196.9 no aspect of this programme was contingent or part of a contingent project.

[359] Farrier Swier Consulting Pty Ltd and GHD Pty Ltd "Verification report - Aurora Energy CPP application" (8 June 2020), Appendix C.4 p.165-170 and Appendix D.4 p.356-361.

D197 The Verifier also identified a range of key issues that Aurora and we may wish to consider, including that:

D197.1 Aurora needs to capture and build-up asset attribute, condition, and performance information to enable accurate health and criticality assessments;

D197.2 the business case for safety risk driven expenditure should be better articulated with condition and performance data that allows for risk assessments. This will also enable objective assessment of the ALARP position (i.e. cost vs safety benefit balance) and better understanding of residual risk;

D197.3 Aurora should actively and regularly benchmark its asset management practices and unit costs where available with peer businesses in the industry with an aim to improve its efficiency.

D198 The Verifier concluded that it fully verified the proposed crossarms renewals expenditure.

Our findings

D199 We have reviewed the CPP Application material and the Verifier's analysis of the crossarms renewals programme, as well as the State-of-the-Network report that was carried by WSP prior to the CPP.

D200 We consider that the Verifier's analysis has been robust and has sufficiently tested this programme of expenditure against the requirements of the IMs and can be relied upon.

D201 Aurora states that it estimates that 10% of crossarms are likely to be at end-of-life and that 40% of the fleet will need to be replaced over the next 10 years. This is a difficult fleet to accurately define asset condition for, so a repex modelling approach, in addition to inspections carried out during replacements to refine expected life estimates, is a reasonable approach to take to forecast investment need.

D202 We agree with the Verifier that Aurora has reasonably established the need for the quantum of crossarms renewals, that the underpinning drivers are appropriately identified, and the asset condition data limitations have been adequately described.

D203 Aurora has taken a repex approach to forecast replacement volumes, which has been applied conservatively and would tend to over-forecast replacement volumes. However, the Verifier notes that the timing of the need is consistent with the imperative to mitigate the safety risks, associated with the ageing crossarm population.

D204 The Verifier noted though that safety risk driven expenditure should be better articulated with condition and performance data that allows for risk assessments. This would also enable objective assessment of the ALARP position (i.e. cost vs safety benefit balance) and better understanding of residual risk.

D205 While we understand Aurora is attending to known safety issues, it has been unable to analytically demonstrate in this asset class how it has made the distinction between safety expenditure to meet explicit regulatory standards, and the safety expenditure that may be required by the general duty to provide a safe working environment and ensure public safety.

D206 In summary and based on our analysis of CPP proposal material, and the Verifier's review, our draft decision is that the proposed amount of $38.3 million for crossarms renewals capex verified by the Verifier, is likely to be prudent and efficient and meets the expenditure objective.[360]

[360] Note that for the crossarms asset class Aurora has modelled and included in its proposal capex efficiencies that it expects to achieve over the CPP period.

Capex renewals – Overhead conductor

Background

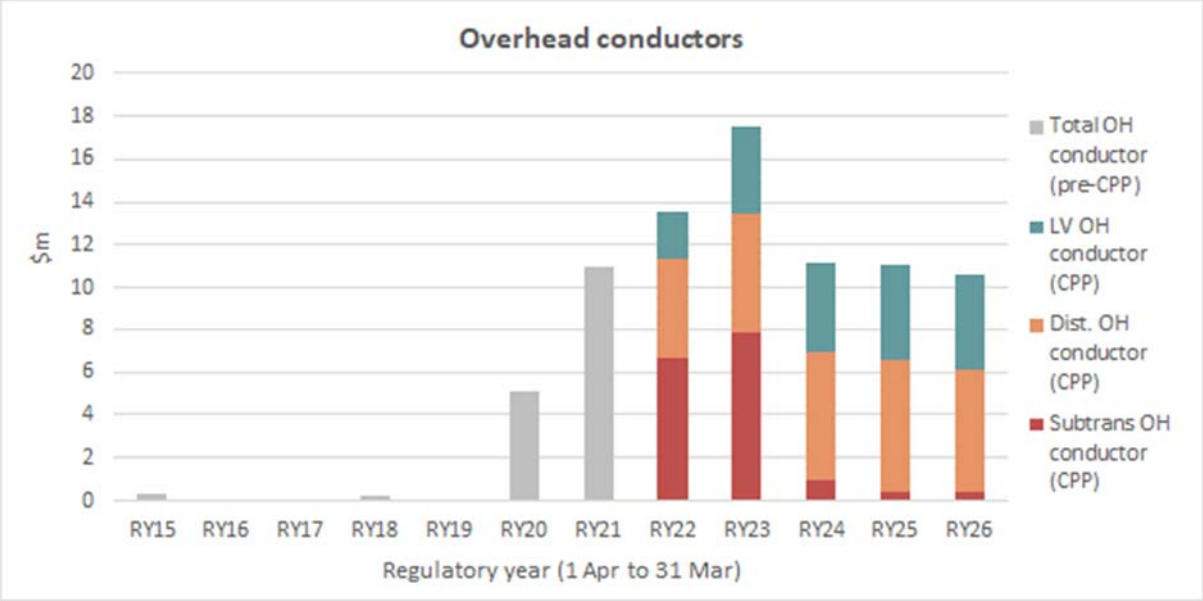
D207 Aurora is proposing to invest $64.0 million over the CPP period (see Figure D5) in its overhead (OH) conductor replacement programme, after a period of negligible investment. This programme comprises:

D207.1 $16.3 million for overhead sub-transmission conductor;

D207.2 $28.1 million for overhead distribution conductor; and

D207.3 $19.6 million for overhead low-voltage conductor.

Figure D5 Overhead conductor renewals capex between RY15 and RY26



D208 Aurora considers that this expenditure is necessary because:

D208.1 a significant volume of overhead sub-transmission conductor has exceeded its expected life;

D208.2 there are clearance violations and an increasing trend of conductor drop issues in the overhead distribution conductor fleet; and

D208.3 there are asset health issues in the overhead low-voltage copper conductor fleet.

D209 The WSP State-of-the-Network review also identified conductor condition as a key risk in Aurora's network, and concluded at the time of its review that:[361]

D209.1 Aurora does not have a dedicated inspection and testing program for overhead conductors but undertakes visual inspection on an opportunistic basis when inspecting other assets as part of other maintenance tasks;

D209.2 the quality of the attribute information for overhead sub-transmission lines was good overall. Over 99% of conductor types were recorded in GIS;

D209.3 the A, B and C sub-transmission lines between Berwick and Halfway Bush were in poor condition, and there was a higher probability of failure on some sections (the A and B lines that are in closer proximity to the coast and 111 years old);

D209.4 there are spans of the overhead sub-transmission lines that do not comply with statutory minimum height requirements; and

D209.5 overhead distribution conductor failures have the largest impact on network performance by asset class, contributing 33% of annual asset-related outages between 2013 and 2017.

D210 WSP identified that between 2015 and 2018 there was a total of 225 public hazard incidents relating to overhead conductor failures in Aurora's network, with 27 of these classed as serious hazards.[362]

[361] WSP "Independent review of electricity networks - Final report - Aurora Energy" (21 November 2018), Section 11 and 12 p. 96-117.

[362] WSP "Independent review of electricity networks - Final report - Aurora Energy" (21 November 2018), Table 7.2 p. 48.

What the CPP Application says

D211 In its CPP proposal Aurora notes that:[363]

D211.1 there is 524km of overhead sub-transmission conductor operating at 33 kV and 66 kV; 25% of this asset fleet is copper conductor which has exceeded its life expectancy;

D211.2 the majority of the overhead sub-transmission conductor renewals programme in the proposal involves replacing the copper conductor used on the Berwick to Halfway Bush circuits; this is planned to be replaced by 2023-2024 and will reduce the volume of overhead sub-transmission conductor in the H1 asset health indicator category to 1% of this asset fleet;[364]

D211.3 cost estimates for the Berwick to Halfway Bush line re-conductoring are based on detailed project estimates with unit rates reviewed by an external consultant;

D211.4 future overhead sub-transmission conductor renewals forecast will be based on a proactive age-based strategy with replacement location based on criticality;

D211.5 there has been an increasing trend of conductor drops especially between 2016 and 2020, and while many of these have been coincidental with adverse weather, the increase reflects the ageing conductor fleet;

D211.6 the ageing copper and No 8-wire type conductors are the predominant drivers of poor asset health in the distribution overhead conductor asset class. In the low-voltage conductor asset class, copper conductor ageing is the main driver of poor asset health;

D211.7 forecast replacement volumes for the distribution and low-voltage conductor types is based on a repex modelling approach, using a normal probability distribution curve based on a conductor life expectancy which varies by type, conductor size and location; and

D211.8 asset unit rates are based on average costs of historical distribution conductor replacement works; the low-voltage overhead conductor unit rate is based on the distribution overhead conductor rate but reduced to reflect efficiencies since more live line work can be undertaken. Both unit rates have been reviewed by an external party.

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[363] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), Executive Summary and Section E.6 and E.7 p. 95-103.

[364] Note the Berwick to Halfway Bush 33 kV circuits are part of a legacy network arrangement that connects the Waipori Hydro Power Station and Mahinerangi Wind Farm to the Aurora network and Transpower grid.

Review of the sub-transmission overhead conductor programme [365]

D212 Most of the $16.3 million overhead sub-transmission conductor renewals programme involves replacement and reconductoring of Berwick to Halfway Bush 33 kV lines. Aurora plans to reconductor and replace the three-existing overhead 33 kV lines with two higher capacity lines with modern conductor.

D213 Aurora states that it has considered a wide range of options and determined that the most cost-effective solution is to rationalise the three lines to two higher capacity lines with longer span lengths. Project costs estimates have been derived and the project will be competitively tendered.

D214 Aurora states that the main investment driver is conductor condition, and that the existing copper conductor is over 100 years old and has known industry reliability issues. The copper conductor has an expected life of approximately 70 years, and Aurora considers it would be prudent to replace this now.

Submission – Berwick to Halfway Bush 33 kV line rationalisation and options considered

D215 We received a very detailed confidential submission about Aurora's rationalisation plan for the Berwick to Halfway Bush 33 kV lines and what alternatives had been considered, some detailed costings, cost benefit analysis to decide the least cost solution, and whether a staged investment approach should be taken.[366]

D216 The confidential submission also provided us with a publicly available Electronet report, prepared for Trustpower Limited to test alternative connection arrangements to embed the Waipori Hydro Power Station into the Halfway Bush GXP.[367]

D217 Some key points made in the confidential submission included:

D217.1 whether complete replacement was required now rather than a targeted replacement of at-risk components;

D217.2 that previous Aurora AMP information noted that every pole and crossarm on all three lines had been replaced at least once since the lines were constructed;

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[365] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), Executive Summary and Section E.6 p. 95-99.

[366] 0483 "Submission on Aurora Energy's CPP Issues paper" (20 August 2020).

[367] 0483 attachment "Submission on Aurora Energy's CPP Issues paper" (20 August 2020), also publicly available at https://www.transpower.co.nz/sites/default/files/uncontrolled_docs/Waipori-PDA-External-Report.pdf

D217.3 the A and B lines were first commissioned in 1907 and the C line in 1934; a great deal of maintenance must have been completed over the years; a drive along the line would appear to confirm this with numerous different insulator types, poles and cross arms in existence;

D217.4 if the option to replace one line now and others in the future had been considered;

D217.5 if complete replacement of all three lines was required immediately, and was the option to do this at a higher voltage considered such as 66 kV and 110 kV on a double circuit line, rather than two lines at 33 kV; and

D217.6 if the findings of the 2013 Electronet report, commissioned by Aurora in 2013, which appeared to have Trustpower support at the time, were considered.

RFI – Berwick to Halfway Bush 33 kV line rationalisation and alternatives considered

D218 We sought additional information from Aurora about this project informed by the confidential submission. We were interested to test how Aurora had arrived at the decision to rationalise the existing three lines between Berwick and Halfway Bush to two, whether it had considered a staged approach to replacement, how Trustpower was consulted about the project and the impact it would have on Waipori hydro operation, and if there was any advantage to Trustpower or not in having alternative connection arrangements into Halfway Bush.[368]

D219 Aurora confirmed that, on the question of options considered, it had focused on three main options, namely:

D219.1 Option 1 - continue with three circuits and renew individual poles and conductor as required on an incremental basis;

D219.2 Option 2 - rebuild the three circuits, one section at a time enabling a re-design of the line with longer spans to reduce the number of poles; and

D219.3 Option 3 - rebuild two circuits of larger capacity, one section at a time, enabling the third circuit to be decommissioned.

D220 Aurora considered Option 3 was the least cost solution that simultaneously accommodated conductor replacement needs and the fact that there was "a significant number of poles requiring renewal over the medium term as a consequence of either deteriorating strength or uneconomic pole top repairs."

[368] Waipori Hydro power station is connected to Aurora's Berwick 33 kV zone substation by 33 kV sub-transmission circuits owned and operated by Trustpower.

D221 The staged like-for-like renewals and replacement approaches (Options 1 and 2) were not favoured due to efficiency and asset condition considerations, With Aurora stating that:

> The need case is to address conductor approaching end of life, a significant number of poles requiring renewal over the medium term as a consequence of either deteriorating strength or uneconomic pole top repairs.

D222 Aurora confirmed its preferred option would also take a staged rebuild approach between 2019-2020 and 2023-2024. While we consider that Aurora's summary of its reasons for choosing Option 3 seem reasonable, we were surprised that it did not have a formal cost-benefit analysis available to demonstrate how Option 3 compared with the other options considered.

D223 While the CPP application states that "we have considered a wide range of different options, concluding that the most cost-effective solution involves the installation of two higher capacity, 33 kV overhead lines between Halfway Bush and Waipori", no explicit cost-benefit analysis was carried out.[369]

D224 Aurora appears to have mis-characterised the analysis that underpins this decision in its CPP application. The RFI information suggests that on the basis of the nominal capital cost comparison the two-line option is the least-cost. However, a NPV analysis, which would account for deferred expenditure in the staged Options 1 and 2, has not been carried out.

D225 Aurora states that a full NPV analysis would require a significant number of assumptions to be made, and that at present it does not fully know:

> the degradation rate of the poles, the life extension obtained on the reinforced poles, the quantum of defects requiring repair or triggering pole renewal, the conductor strength degradation and the conductor hardware condition including inline joints, bindings and connections, and the number of accelerated pole replacements triggered by conductor replacement. One of the challenges with this option is achieving new line clearance standards (increased pole height) without the need to cut and join the conductor.

D226 However, Aurora further states that:

> The need case is to address conductor approaching end of life, a significant number of poles requiring renewal over the medium term as a consequence of either deteriorating strength or uneconomic pole top repairs.

D227 So, while Aurora has not carried out an explicit cost-benefit analysis, it has come to the view that the staged replacement and ongoing renewals option appears to be uneconomic.

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[369] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), Section E.6.1 para 379 p. 97.

D228 We tested the two-line solution and a staged three-line replacement solution at a high level using the Jacobs unit cost price book. We compared a rationalised two-line solution, starting in 2020-2021 over four years, with a staged three-line replacement approach. The economic break-even point appears to occur if the staged replacement approach occurs over a ten-year period. If the replacement is extended beyond 10 years, the three-line solution appears like it might be more economic. This is indicative analysis only though.

D229 However, notwithstanding the economics of deferral, based on the information before us we consider the argument for replacing the conductor now is really an asset condition and safety one. We consider that the conductor replacement itself is likely to be prudent and efficient based on asset condition considerations and heightened safety risk due to conductor, pole and crossarm failures on the existing 33 kV lines. The risk cost trade-off is whether Aurora should take a staged approach and manage the safety risk over a longer period or invest now.

D230 We could defer our approval of this project and direct Aurora to utilise the reconsideration mechanism for risk events that we have introduced for this project once it can provide more compelling cost-benefit analysis (see Attachment J). However, as WSP notes in its report, Aurora is experiencing a much higher rate of copper conductor drop incidents when compared to other conductor types.[370]

D231 We consider that a nominal cost comparison of the two-line versus three-line replacement alternative is a reasonable one to make, to judge the most cost-effective solution, given the known conductor condition issues and the safety risks inherent in 33 kV conductors with high failure rates.

D232 On the matter of Trustpower's involvement in discussions, Aurora indicated in its RFI that it has been engaging with Trustpower for the last two years on this project.[371]

D233 In summary, and on the basis of the information we have received in the proposal, the WSP report identified conductor risks, and the supporting information in the Aurora RFI, we consider that it is likely to be prudent and efficient to replace the copper conductor and associated structures on the Berwick to Halfway Bush 33 kV lines now rather than take a staged approach, and that using a comparative cost analysis is a reasonable approach to judge the least cost solution.

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[370] WSP "Independent review of electricity networks - Final report - Aurora Energy" (21 November 2018), p.112. Light copper and light ACSR have the highest failure rates, at approximately four times the number of failures of the next nearest type.

[371] Note that we did not receive any submission from Trustpower, so either it is unaware that this project is included in Aurora's CPP and that it can comment on this, or it must consider that the solution Aurora is proposing and the timing of the project implementation is acceptable.

Overhead distribution and low-voltage conductor renewals - what the Verifier said

D234 The Verifier reviewed the OH distribution and low-voltage conductor renewals programmes and concluded that:[372]

D234.1 several operational standards and forms related to overhead line design, construction and inspection were reviewed; this was supported by the AMP information which appeared to provide effective direction to manage these conductor fleets;

D234.2 Aurora has satisfactorily established the need for these renewals and to have a dedicated renewals programme;

D234.3 underpinning drivers are appropriately identified, the asset condition data limitation described, and the assumption used to support the case has been explained; investment need is generally aligned with its risk management framework and asset management principles;

D234.4 key assumptions in the needs analysis are asset age information and expected life of the different conductors under different corrosion conditions, and a statistical distribution around an expected life, using the remaining age as the proxy for asset health or probability of failure; this is a reasonable approach for these fleets given the inherent safety and reliability risk with these asset classes;

D234.5 timing of the need is also generally consistent with the imperative to mitigate the safety risks associated with the ageing conductor and under clearance span population for the overhead distribution conductor fleet;

D234.6 Aurora followed its risk assessment methodology by considering the asset health assessment with the criticality assessment (proxy for consequence of failure) considered after establishing the expenditure level and to prioritise actual work;

D234.7 WSP used a qualitative approach that has been further advanced by Aurora to use an age-based replacement model. This enables a more accurate forecast to be made;

D234.8 asset data issues can be improved with current strategy to inspect, maintain, and replace;

D234.9 unit costs and expected asset life used by Aurora for forecasting were benchmarked against industry peers which was considered reasonable;

[372] Farrier Swier "Verification Report – Aurora Energy CPP Application" (8 June 2020) Appendix C.4 p.165-170 and Appendix D.4 p.356-361.

D234.10 the conductor renewals programmes interact with the poles and crossarm replacements, and to avoid double counting these have been reconciled by Aurora; and

D234.11 no aspect of these programmes was contingent or part of a contingent project.

D235 The Verifier also identified a range of key issues that Aurora and us may wish to consider, including that:

D235.1 there are asset data limitations and refining the health (failure probability) and criticality (consequence) assessments by improving data accuracy and completeness in the future should be carried out;

D235.2 the proposal does not sufficiently detail the risk reduction benefit achieved by the forecast expenditure. In part, this is because Aurora uses anecdotal incidents and references statements in the WSP report, to demonstrate the need for the expenditure. If a more systematic analysis of risk had been undertaken, this would have helped in showing how the proposed expenditure should reduce risk;

D235.3 Aurora needs to capture and build-up asset attribute, condition, and performance information to enable accurate health and criticality assessments;

D235.4 while replacement volumes appear higher than benchmarked peers, this seems necessary to avoid an increase of potential replacement volumes in future years; and

D235.5 Aurora should actively and regularly benchmark its asset management practices and unit costs where available with peer businesses in industry with an aim to improve its efficiency.

D236 The Verifier concluded that it fully verified the proposed overhead distribution and low-voltage conductor renewals expenditure. We reviewed the Verifier's analysis and agree with its conclusions in these asset categories.

Our findings

D237 We have reviewed Aurora's justification for this replacement and consider that it is prudent and efficient primarily due to poor copper conductor condition. While Aurora could have been more explicit about the alternatives it considered and how these compared economically, conductor and pole structure condition issues mean a comparative cost analysis for a two-line versus a three-line solution is a reasonable one to make.

D238 The Verifier noted that there were a number of areas of improvement that Aurora could make in its asset management of the overhead conductor asset classes, such as improving asset data, more timely inspections and how it quantifies risk reduction around high-risk areas where there is overhead conductor.

D239 In summary we consider that the Verifier's analysis in this area has been robust and has sufficiently tested this programme of expenditure against the requirements of the IMs and can be relied on.

D240 Given that the majority of the overhead sub-transmission conductor proposed expenditure is to replace ageing copper conductor, and that the need for ageing copper conductor replacement has been sufficiently tested in the Verifier's review, and based on our own analysis of the CPP proposal material, we are satisfied that:

D240.1 Aurora has sufficiently justified the Berwick to Halfway Bush 33 kV reconductoring and rationalisation as the most economical solution; and

D240.2 the proposed $16.3 million overhead sub-transmission conductor renewals programme is likely to be prudent and efficient and meets the expenditure objective, subject to a 5% efficiency adjustment.

D241 Additionally, based on the findings of the Verifier, we also consider that $28.1 million of overhead distribution conductor renewals capex, and $19.6 million of overhead low-voltage conductor renewals capex is likely to be prudent and efficient and meets the expenditure objective subject to 5% efficiency adjustments.

Capex renewals – Cables

Background

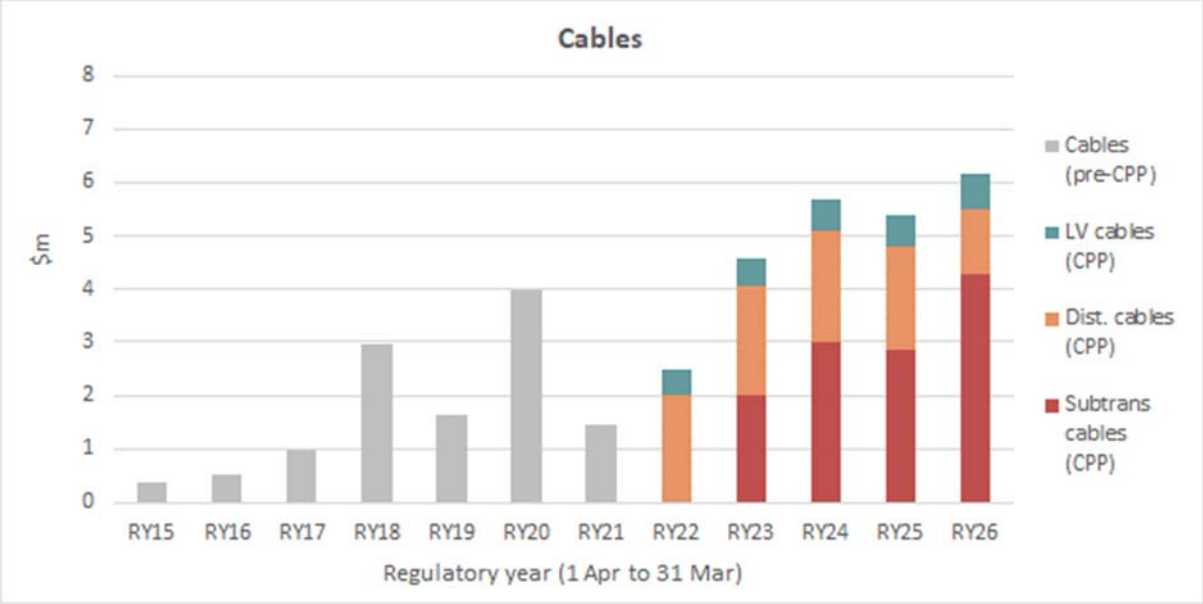
D242 Aurora is proposing to invest $24.3 million over the CPP period (see Figure D6) in its cable replacement programme that comprises:

D242.1 $12.1 million for sub-transmission cables;

D242.2 $9.4 million for distribution cables; and

D242.3 $2.8 million for low-voltage cables.

Figure D6 Cable renewals capex between 2014-2015 and 2025-2026



D243 Aurora considers that an uplift in sub-transmission cable expenditure is necessary due to the poor asset health of the gas-filled cable fleet, and that intervention is necessary to ensure that this situation does not deteriorate.

D244 Aurora is not anticipating a significant increase in expenditure in the distribution and low-voltage cable asset classes as these fleets are in relatively good condition with very low replacement volumes required in the LV cable fleet (as shown in Figure E6).

D245 The Verifier did not review any of the cable renewals programmes, so we carried out our own review using the CPP Application material, the WSP report and a Strata report to test the need for investment based on the information supplied by Aurora. The analysis in this section will focus on the sub-transmission and distribution cable fleets as this makes up most of the expenditure in this programme.

The WSP report

D246 Aurora's sub-transmission cable fleet includes 93km of cables operated at 33 kV and 66 kV and includes four cable technology types; oil insulated cables, gas insulated cables, Paper Insulated Lead Covered cable (PILC), and Cross-Linked Polyethylene (XLPE).

D247 The distribution and low-voltage cable fleets include 1,046km of high-voltage (11 kV and 6.6 kV) cables and 956km of low-voltage (400V) cables and includes three cable technology types; PILC, XLPE, PVC, and also 1.4km of submarine cable where the cable type is not stated.

D248 The WSP report concluded that:

D248.1 Aurora's sub-transmission cable inspection and testing data did not contain a comprehensive set of cable test results or records of oil leaks; there were also no cable testing records for the XLPE and PILC sub-transmission cables; there was no regular testing regime in place for the distribution cables;[373]

D248.2 high-voltage distribution cables contributed about 11% of total network outages, caused mostly by asset deterioration;

D248.3 sub-transmission cable outage and fault records were not available; there were no inspection or issue investigation records available for faults or specific failure modes;

D248.4 sub-transmission cable circuit availability data was not complete or up to date; data was available from 2000 to 2003 and 2012 to 2017 for Dunedin and 2003, 2012 and 2013 for the Central networks;

D248.5 about 10% of distribution PILC cables and the entire section of high-voltage submarine cables have exceeded their expected life and represent an elevated risk of failure for this asset type;

D248.6 due to the N-1 arrangement of the Dunedin sub-transmission cables, a fault on a cable does not necessarily result in an outage as the load is transferred to the other cable and supply is maintained;

D248.7 based on historical outage records and interviews with staff, there were indications that the gas and oil insulated sub-transmission cables were reaching the end of their serviceable lives;

[373] WSP "Independent review of electricity networks - Final report - Aurora Energy" (21 November 2018), Section 13 p.118-128 and Section 14 p.129-135.

D248.8 cast iron pot-head distribution cable terminations on poles in the Dunedin network were identified as a public safety risk.

D249 WSP concluded that, in the sub-transmission and distribution cable asset classes, there was low to moderate risk to network reliability; while cable oil leaks can pose a risk to the environment, no leaks were identified at the time of the review. However, Aurora needed to address the distribution cable cast iron pot head cable terminations in key areas due to public safety concerns.

D250 Since the WSP report was published in November 2018 Aurora has been systematically replacing cast iron pot-heads and this will continue until RY25 with the high safety risk assets removed from the network by RY21.[374]

What the CPP Application says

D251 In its CPP proposal material Aurora notes that:[375]

D251.1 the gas-filled cables are a predominant driver for poor health of the sub-transmission cable fleet; failure to address this now will result in the asset health of this fleet deteriorating significantly by 2023-2024 (predicted % of assets with asset health indicator of H1 from 6% now to 20% by 2023-2024 without intervention);

D251.2 there is an integrated plan for Dunedin supply reinforcement with the sub-transmission cable renewals work;

D251.3 analysis suggests there is unusually high failure rates for all types of sub-transmission cables with incidents occurring almost annually;

D251.4 failure of the older gas and oil cables is challenging due to gas leaks being difficult and costly to locate, and joints and termination parts becoming difficult to source;

D251.5 there is a diminishing qualified gas/oil sub-transmission cable workforce, and with insufficient ongoing industry training occurring, it may become more difficult to find competent jointers to repair the oil and gas cables;

D251.6 there has been an intermittent leak on an oil-filled cable circuit that has not been located despite significant investigation work;

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[374] WSP Action Plan – Annual Progress Report available at https://www.auroraenergy.co.nz/assets/Independent-Review-Mar-2018/Aurora-Energy-Annual-Update-on-WSP-Action-Plan-31July-2020.pdf

[375] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), Executive Summary and Sections E.8 p. 104-109.

D251.7 a replacement programme has been initiated to replace the cast iron pot heads identified as a safety risk by WSP;

D251.8 a volumetric approach has been used to forecast distribution and LV cable asset renewal replacement volumes. This involves multiplying a unit rate with the forecast replacement quantity, established using a repex approach. This approach is used in preference to survivor curve analysis due to the lack of condition data to construct survivor curves; and

D251.9 an age and condition-based approach has been used to forecast sub-transmission cable replacements; costs for each sub-transmission cable replacement project are derived individually after a tender process due to a range of project specific considerations such as trenching costs, traffic and associated switchgear, for example.

D252 We consider that Aurora has taken a reasonably risk averse stance for its proposed programme of sub-transmission cable renewals. Given the age of the technology, increasing failure rates, availability of repair equipment and suitably qualified staff, and the fact that it is integrating its renewals with a reinforcement strategy, the replacement approach appears to be reasonable.

D253 While it is less clear that the distribution and LV cable replacement strategy is prudent and efficient though given the lack of asset condition data, the majority of the distribution cable renewals expenditure is related to replacement of the cast iron pot heads, which is a clear safety issue.

Strata review of the cable renewals programme

D254 The sub-transmission, distribution and low-voltage cable renewal programmes were not reviewed by the Verifier. Given that these programmes constitute about 7% of the total capex portfolio, and that sub-transmission cable replacement is a key strategic programme for Aurora, we wanted to test how Aurora had justified this level of expenditure in greater detail. We engaged Strata for this purpose.

Sub-transmission cables – Strata review

D255 In relation to the sub-transmission cable renewals, Strata's key findings were that:

D255.1 the key sources of policies and planning standards for the sub-transmission, distribution and low-voltage cable fleets are the CPP Application itself and the AMP; there was nothing in this documentation that linked to higher level policies and standards for these asset classes;

D255.2 Aurora clearly identified and stated the expected benefits and key drivers for the proposed replacements; but there is no quantification of the expected benefits, and these are just descriptive;

D255.3 Aurora's previous AMPs have identified issues and increasing risks due to the ageing oil and gas filled sub-transmission cables;

D255.4 for such important sub-transmission cables, a systematic risk and criticality assessment should have been undertaken to determine the priority order and optimal cable replacement timing;

D255.5 Aurora's sub-transmission cable replacement prioritisation has been based on asset age with actual replacements using staff engineering judgement; and

D255.6 cable fault information from 2016 onwards shows cable faults have fluctuated widely, and Aurora could have analysed this in greater depth in support of its application.

D256 Strata concluded that the low failure rates for sub-transmission cables had not been sufficiently explained, and if similar rates are seen in 2020 and beyond, particularly on the Kaikorai Valley and Corstorphine 33 kV cables, these proposed replacements should be deferred by one year and could be deferred further by Aurora, if low fault rates persist. Strata's recommendation to defer the sub-transmission cable replacement programme by one year results in a deferral of expenditure of $4.3 million over the CPP period.

D257 We agree with the Strata conclusion regarding the observed recent low fault rate not supporting early cable replacements and agree that a one-year deferral at least be applied to this programme of expenditure. We also encourage Aurora to review its sub-transmission cable replacement programme based on the most up to date fault information.

D258 Accordingly, our draft decision is to amend the proposed amount in the sub-transmission cable renewals programme from $12.1 million to $7.8 million over the five-year CPP period.

Distribution cables – Strata review

D259 In relation to the distribution cable renewals, Strata's key findings were that:

D259.1 consistent with the WSP opinion and the policy at other Electricity lines companies, replacing cast iron pot-heads is an appropriate replacement driver; Aurora purposes to replace all its cast iron pot-heads by 2025. This is supported due to the safety risk these assets pose;

D259.2 given the underground location of assets preventing regular condition inspections, age tends to be a common and acceptable trigger for replacement;

D259.3 the repex modelling approach taken by Aurora using a normal distribution curve to calculate an age-based replacement rate has not been sufficiently evidenced by Aurora; the normal distribution curve approach is likely to overestimate replacement need;

D259.4 unit costs for distribution cables fell within 10% of the Jacobs estimate which is reasonable;

D259.5 Aurora's model predicts replacement of about 2.1 km of distribution cable between RY22 and RY26; this is consistent with recent replacement rates plus an uplift to reflect cable end of life estimates; however, the increase in replacement volumes is driven by the cumulative failure rates in the repex model which has not been correlated with actual failure rates; and

D259.6 deliverability considerations have been used by Aurora to smooth replacement volumes, but Aurora should determine replacement volumes using recent replacement rates.

D260 We agree with the Strata analysis and the conclusions about the repex modelling approach not being fully evidenced by failure rate data. We also agree that the forecast replacement volumes should be based on recent replacement rates and have amended the proposal forecasts accordingly.

D261 Accordingly, our draft decision is to amend the proposed amount in the distribution cable renewals programme from $9.4 million to $8.5 million over the five-year CPP period.

Low-voltage cables – Strata review

D262 In relation to the low-voltage cable renewals, Strata's key conclusions were that:

D262.1 given the age profile of the low-voltage cable fleet and the relatively low failure rates, Aurora is correct in applying a replace on fault/failure strategy; consequently, forecast replacement volumes should be consistent with historical volumes;

D262.2 the key drivers that Aurora has identified are consistent with electricity lines company practices and are appropriate for the type and age of Aurora's low-voltage cable fleet;

D262.3 Aurora has not demonstrated that its repex modelled forecast expenditure increase above historical replacement volumes is warranted because:

D262.3.1 the modelled forecast for its PILC cables are very low;

D262.3.2 the costs of third party damage should be in part recoverable from the third party;

D262.3.3 Aurora is not experiencing issues related to its XLPE cables;

D262.4 Jacobs determined that Aurora's unit cost for low-voltage cable replacement was 6% lower than its benchmark; and

D262.5 a more reasonable basis for the replacement forecast is to apply the most recent actual expenditure because this will be more reflective of the actual performance of the low-voltage cables than the failure rates projected in the model.

D263 We agree with the Strata analysis and the conclusions about the repex modelling approach not being fully evidenced by failure rate data. We also agree that the forecast replacement volumes should be based on recent replacement rates and have amended the proposal forecasts accordingly.

D264 Accordingly, our draft decision is to amend the proposed amount in the low-voltage cable renewals programme from $2.8 million to $1.5 million over the five-year CPP period.

Our findings

D265 We have reviewed the CPP Application material and Strata's analysis of the cable renewals programmes, as well as the State-of-the-Network report that was carried outby WSP before the CPP.

D266 While the investment drivers for the cable renewals fleet are largely consistent with industry practice, Aurora's policies and planning standards are still at a developmental stage.

D267 Drivers for investment include specific asset replacement need, age-based replacement, and the use of historical failures to forecast replacement expenditure. Cast iron pot-head termination replacement in the distribution cable fleet is planned to be completed by RY25 and this is fully supported due to safety considerations.

D268 Aurora has used repex modelling to forecast replacement volumes beyond the need to address known issues. This is a reasonable approach in the absence of asset condition data.

D269 Ideally, repex model failure distribution curves should be informed by actual failure rate data. In the LV and distribution cable fleet repex models (as in other asset classes) this failure rate data is missing, and Strata has advised that this would tend to overestimate investment need.

D270 We agree with this finding and agree with Strata's recommendations to amend the proposed amounts accordingly based on its adjustments of model assumptions that are more aligned with recent cable replacement rates. This has resulted in an adjustment of $1.3 million in the LV cable renewals programme and $0.9 million in the distribution cables renewals programme.

D271 We also agree with Strata's findings regarding the low fault rate supporting a deferral of the sub-transmission cable renewals by at least a year and encourage Aurora to review this programme based on the most up to date cable fault information. This has resulted in a reduction of $4.3 million in the sub-transmission cable renewals programme that we consider does not meet the expenditure objective.

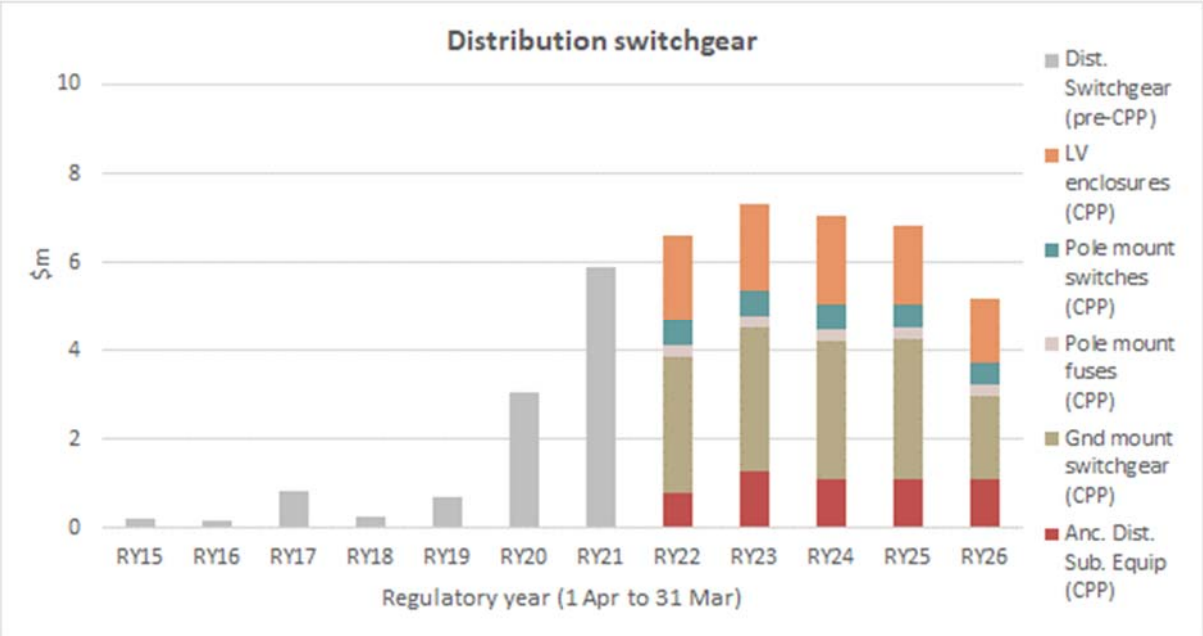
D272 Based on the our analysis of the CPP proposal and the review carried out by Strata, our draft decision is that the amended amounts of $7.8 million for sub-transmission cables, $8.5 million for distribution cables and $1.5 million for low-voltage cables are more likely to be prudent and efficient and meet the expenditure objective subject to the 5% capex efficiency adjustment.

Capex renewals – Distribution switchgear

Background

D273 Aurora is proposing to invest $32.9 million over the CPP period (see Figure D7) in its ground mounted switchgear renewals programme due to asset condition, safety, reliability, and obsolescence reasons.

Figure D7 Distribution switchgear renewal capex between 2014-2015 and 2025-2026



D274 The distribution switchgear renewals programme includes expenditure for:

D274.1 $5.3 million for ancilliary distribution substation equipment - 300% more than the previous five-year period;

D274.2 $9.0 million for low-voltage enclosures - 430% more than the previous five-year period;

D274.3 $2.8 million for pole-mounted switches - 240% more than the previous five-year period;

D274.4 $1.4 million for pole-mounted fuses - 190% more than the previous five-year period; and

D274.5 $14.5 million for ground mounted switchgear - 110% more than the previous five-year period.

D275 The Verifier only reviewed the low-voltage enclosures renewals programme, so we carried out a limited review of the ground mounted switchgear and ancillary distribution substation equipment.

The WSP report

D276 WSP report identified significant issues in the distribution switchgear asset class. Some of these issues include that:

D276.1 in general asset data was incomplete for these assets and, at the time of writing, there had not been a regular dedicated inspection and testing program for distribution switches; Aurora testing during the WSP analysis found many switchgear assets that were not operating correctly;

D276.2 there was evidence of auto-reclosers detecting faults, tripping lines and auto-reclosing, but then failing to re-trip when the fault remained which can lead to a severe hazard; this was identified in the public safety hazard register as a high impedance fault scenario that can be difficult for protection devices to detect;

D276.3 21% of the assets in the distribution switchgear fleet had exceeded expected life, although distribution switchgear has only contributed 8% to the average number of outages on the network between 2013 and 2017 but there is an increasing trend;

D276.4 a significant number of distribution switchgear units are defective and inhibit normal operation of the network, which can lengthen outages experienced by customers or expand the number of customers affected as an upstream switch must be operated instead;

D276.5 a significant portion of the RMU type switchgear inspected (40%) have oil leaks, indicating a deteriorated condition; and

D276.6 the L&C type switchgear are at or approaching end of life and are found to have a high probability of failure; they have been found to have an explosive failure mode and, hence, can pose a risk to safety; there are also similar issues with the Statter switchgear.

D277 WSP concluded that the distribution switchgear assets posed a low to moderate, but an increasing risk to network reliability, and specific assets pose a high risk to worker safety.[376]

What the CPP application says

D278 In its CPP proposal Aurora notes that:[377]

D278.1 the majority of the ground mounted switchgear fleet is oil type, is aged, and in poor condition; there are identified explosive failure modes and a risk to work safety;

D278.2 some of the switchgear is in areas of high network fault currents and are being operated without the modern arc flash safety ratings and barriers - this is considered a high safety risk for workers;

D278.3 the oil filled Ring Main Unit (RMU) expenditure, is for switchgear to protect ring circuits from faulted overload conditions;

D278.4 without investment the switchgear fleet asset health in category H1 would rise from 6% to 16% by 2023-2024; the low-voltage enclosures are generally in good condition, but some pose a safety risk;

D278.5 the underground substation (Ancillary Distribution Substation Equipment) are also being replaced, which involves either replacing existing underground equipment or moving this above ground; it is planned to have these fully replaced or relocated by RY30;

D278.6 AECOM review of Aurora underground substation sites concluded that asset condition was either good or reasonable; Aurora view is that sites pose a worker safety risk and risk of flooding; relocation of underground substations above ground is also in line with other NZ distribution business practices;

D278.7 condition and safety issues, largely relating to oil filled RMUs, low-voltage enclosures and underground substations are the main drivers for these investments. Analysis suggests that it is in many cases more cost effective to replace much these assets than it is to repair or refurbish them;

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[376] WSP "Independent review of electricity networks - Final report - Aurora Energy" (21 November 2018), Section 9 p.74-86.

[377] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), Section E.8.8 - E.8.11 p. 118-123.

D278.8 distribution switchgear forecasting, apart from the assets that need to be replaced due to safety considerations, obsolescence, or non-operability reasons, has used a repex approach; there is insufficient asset condition data to construct survivor curves; and

D278.9 some historical costs are now known, and this has improved unit rate estimates, particularly in the low-voltage enclosures forecast.

Ancillary substation equipment and ground mounted switchgear – our view

D279 WSP identified a range of reliability and safety issues in these asset classes such as a large percentage of the switchgear assets exceeding expected life (21%), auto-reclosers not operating which is a clear safety risk, and explosive failure modes for some switchgear types. Given these known safety issues and the fact that network protection is both an asset integrity and public safety issue we have accepted Aurora's forecast expenditure in the switchgear asset class likely meets the expenditure objective.

D280 We did not review the ancillary distribution substation equipment proposed expenditure in depth. Aurora has stated that these underground substations pose a safety risk to staff and have proposed to relocate the worst of these above ground or replace non-compliant equipment.

D281 The WSP review of the underground substations concluded that while they appeared to be in good or reasonable condition, Aurora's plan to replace equipment and remove some to "remove the field crew risk caused by confined spaces which is in line with actions being undertaken by other Electricity lines companies in New Zealand".[378]

D282 Based on the Aurora CPP Application and WSP report conclusions we have accepted that the proposed ancillary distribution substation equipment expenditure is likely to meet the expenditure objective.

Low-voltage enclosures - what the Verifier said

D283 The Verifier's analysis concluded that:[379]

D283.1 Aurora operates approximately 21,000 low-voltage enclosures; the underground link boxes (265) are in poor condition and most are more than 45 years of age; they are no longer operated live due to safety risks and they have a high replacement cost;

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[378] WSP "Independent review of electricity networks - Final report - Aurora Energy" (21 November 2018), Section 10.4 p.91.

[379] Farrier Swier "Verification Report – Aurora Energy CPP Application" (8 June 2020) Appendix C.4 p. 165-170 and Appendix C.11 p. 209-214.

D283.2 after considering recent inspection data and Verifier analysis in the draft report, Aurora reduced replacement volumes from about 400 low-voltage enclosures p.a. to about 240 p.a.;

D283.3 the AMP material has been the main source of policies and planning standards for the low-voltage enclosures asset class;

D283.4 the driver to mitigate safety risks are appropriately identified; however, unknown condition had previously limited Aurora's ability to support the proposed replacements;

D283.5 the Verifier feedback modified Aurora modelling assumptions. The Verifier accepted the forecast replacement of low-voltage enclosures after adjustments were made to the volume forecasts for above ground low-voltage enclosures. The adjustments reflected information from recent inspection data for 49% of the fleet, safety risks with known enclosure types, a percentage of enclosures found to be hazardous, and benchmarking with industry peers; and

D283.6 the Verifier was initially not satisfied with unit cost estimates after cost benchmarking; Aurora revised its unit costs to be consistent with expenditure objective.

D284 The Verifier concluded that it fully verified the revised forecast for the low-voltage enclosures renewals expenditure. After our review of the Verifier's report and CPP proposal material we have agreed with the Verifier conclusions that the LV enclosures expenditure is appropriate based on the safety risk driver.

Pole-mounted fuses - what the CPP Application says and Strata analysis [380]

D285 Pole-mounted fuses are part of the distribution switchgear fleet that perform a rudimentary but essential protection and isolation function in the distribution network and primarily protect distribution transformers and HV cables from high fault overcurrents.

D286 A small number of pole-mounted fuses have been issued with a 'do not operate' (DNO) constraint for workers when undertaking urgent maintenance or prudent renewals.

[380] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), Section E.8.8 to E.8.11 p. 118-122.

D287 Aurora state that the asset health analysis of pole-mounted fuses is based on expected asset life or following inspections when other work is being carried out. There are presently 2% of pole-mounted fuses in the H1 asset health indicator category and about 12% in the H1 to H3 categories which indicates replacement is needed by the end of the AMP planning period of 2020 to 2030.[381]

D288 Unit rates costs and how these are derived are not specifically discussed but Aurora has been carrying out a type replacement programme of pole-mounted fuses between 2014-2015 and 2018-2019 so it should have an up to date understanding of the costs in this programme.

D289 Strata made several observations about Aurora's forecasting approach in this asset class including that:

D289.1 there are 5,700 pole mounted fuses installed on network, and these assets have an expected life of 55 years;

D289.2 Aurora's strategy is to gradually increase replacements to a steady state of around 50 replacements a year over the CPP period;

D289.3 Aurora will replace pole mounted fuses based on condition (e.g. if visual inspections identify type issues, cracked insulators or extensive corrosion);

D289.4 to forecast volumes Aurora has used an age-based repex approach but had not factored in actual asset failure rates to modify model outputs;

D289.5 Aurora's repex model output is extremely sensitive to the expected life assumption, and given some historical expenditures have been low in this asset class it indicates that low fault-levels do not reflect predicted replacements; and

D289.6 modifying the expected life of these assets from 55 years to 57 years resulted in a forecast volume change of 20% in the repex model output. This reduction appears to better reflect observed failure rates which should have been used to modify the repex model outputs.

[381] Asset Health Indicator H1 indicates asset where replacement is recommended, H2 means there are end of life drivers for replacement present, and high asset related risk, and H3 means end of life drivers for replacement are present, with increasing asset related risk. From Schedule 15 *Electricity Distribution Information Disclosure Determination 2012* (consolidated April 2018) available at https://comcom.govt.nz/__data/assets/pdf_file/0025/78703/Electricity-distribution-information-disclosure-determination-2012-consolidated-3-April-2018.pdf

D290 Strata recommended that the proposed pole-mounted fuse expenditure should be reduced by 20% by modifying repex model assumptions that better reflect likely asset failure rates, and recommended that an approval amount of $1.1 million was more appropriate. We agree with the Strata conclusions and the proposed reduction.

Pole-mounted switches - what the CPP Application says and Strata analysis [382]

D291 Pole-mounted switches are used to isolate sections of a distribution feeder, so that planned or unplanned work can be carried out. Aurora has stated that it has had issues in the field where switches have 'locked up' making them unable to be operated due to physical linkages rusting from corrosion, particularly in coastal regions.

D292 Aurora state that the pole-mounted switches are in the poorest health in switchgear fleets, and failure to invest would result in 30% of the fleet being classed as H1 by 2023-2024. This would limit the ability to adequately manage the network during outages.

D293 In practice, due to switch corrosion and a failure to operate, Aurora has had to isolate larger sections of the feeder than would otherwise be required, resulting in larger outages than necessary.

D294 Aurora has identified that it needs to increase inspections and maintenance to address issues and gather information to support the pole-mounted switch renewal programme, with an initial focus on aged assets located in severe corrosion zones.

D295 The application did not discuss how costs were arrived at or how the reasonableness of costs was tested.

D296 Strata made several observations about Aurora's forecasting approach in this asset class, including that:

D296.1 Aurora has 926 pole-mounted switches with an average age of 34 years, and 28% of the fleet exceeds the expected life of 50-years;

D296.2 Aurora's strategy is to replace 40 pole-mounted switches each year to maintain the health of the fleet with the assumption that asset health is based on age;

[382] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), Section E.8.8-E.8.11, p.118-122.

D296.3 Aurora has deferred 72 replacements from 2020 and 2021 and allocated these to later years. No reason is given for the deferral or how any increased risks are being managed. However, it appears that the deferral seems to have been minimised by the replacements occurring coincidentally with pole replacements;

D296.4 to forecast volumes Aurora has used an age-based repex approach but had not factored in actual asset failure rates to modify model outputs; and

D296.5 28% of the assets have been in operation well beyond the 50 years, and the front-loaded expenditure profile could be smoothed by applying Aurora's strategy to average the replacements over the five-year CPP period.

D297 Strata has concluded that the repex modelling assumptions made by Aurora tended to overstate investment need, modifying repex model expected life assumptions from 50 to 52 years, to better reflected likely asset failure rates of pole-mounted switches, did not result in a significant reduction in the expenditure total (a reduction from $2.8 million to $2.7 million). This change in expected life tended to smooth the expenditure profile across the five-year CPP period.

D298 Based on its proposed repex modelling assumption changes Strata recommended that the proposed pole-mounted switches expenditure should be reduced to $2.7 million. We agree with the Strata conclusions and the proposed reduction.

Our findings

D299 We have reviewed the CPP Application material, the Verifier's analysis of the low-voltage enclosures renewals programme, as well as the State-of-the-Network report that was carried by WSP in anticipation of a CPP.

D300 We consider that the Verifier's analysis the low-voltage enclosures renewals programme has been robust and has sufficiently tested this programme of expenditure against the requirements of the IMs and can be relied on.

D301 We engaged Strata to review the proposed pole-mounted switches and pole-mounted fuses expenditure, and Strata proposed allowance reductions after modifying repex modelling assumptions to better reflect likely asset failure rates. We agree with these conclusions and the recommendations made by Strata.

D302 We also tested the ancillary substation equipment and ground mounted switchgear renewals programmes by reviewing the WSP report material and CPP Application.

D303 Aurora appears to have justified the prudent need for the forecast replacements of ancillary substation equipment and ground mounted switchgear based on several considerations such as safety, reliability, protection issues, and technology obsolescence. To forecast replacement volumes beyond the known issues Aurora has used repex modelling.

D304 While the repex approach taken by Aurora would tend to over-forecast replacement volumes, it is likely to be a prudent measure for these asset classes due to reliability and safety considerations, so we have agreed with Aurora's forecasts for these programmes.

D305 Asset replacement costs are likely to be current and reflective of industry based on the Jacobs price-book review carried out in support of the proposal. Given Aurora's move towards engaging multiple service providers with its new FSA contracting model, competitive prices for asset replacement and refurbishment should result.

D306 Based upon the analysis we have undertaken, the Strata review, and the findings of the Verifier, our draft decision is to accept that $32.6 million of distribution switchgear renewals capex is prudent and efficient and meets the expenditure objective subject to subject to a 5% efficiency adjustment.[383]

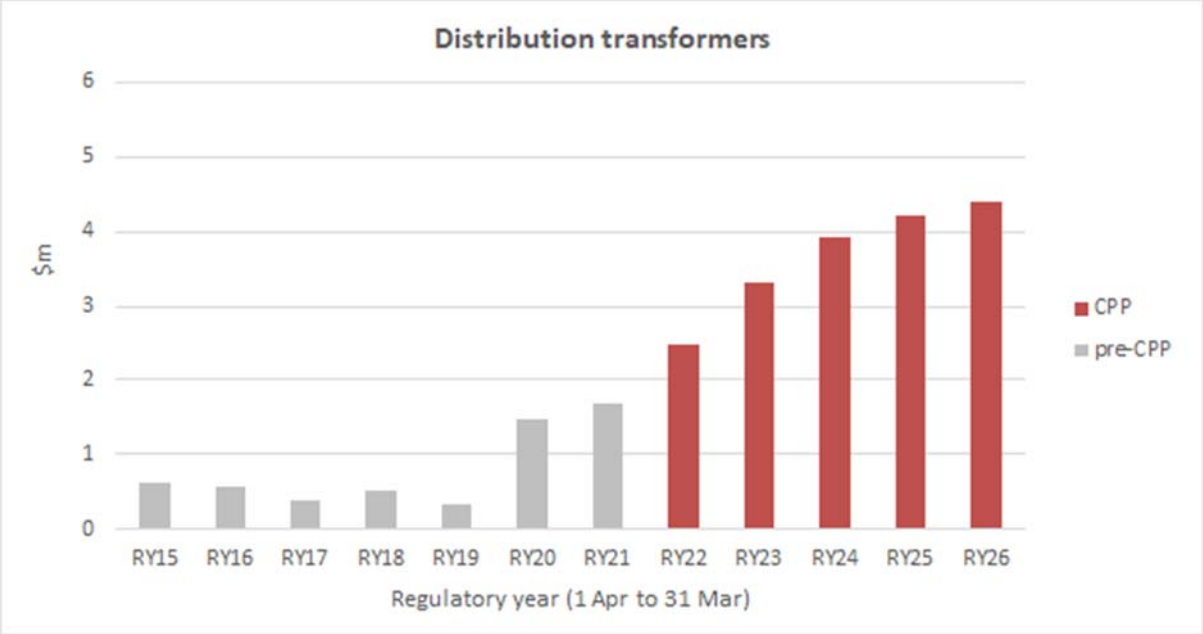
[383] Note that Aurora already models a 5% capex efficiency adjustment in the LV enclosures asset class.

Capex renewals – Distribution transformers

Background

D307 Aurora is proposing to invest $18.3 million over the CPP period (see Figure D8) for ground mounted and pole-mounted distribution transformer renewals programme due to asset health and condition considerations.

Figure D8 Distribution transformer renewals capex between 2014-2015 and 2025-2026



D308 The distribution transformer renewals programme includes expenditure of:

D308.1 $16.7 million for pole-mounted distribution transformers; and

D308.2 $1.7 million for ground mounted distribution transformers.

D309 The Verifier did not review these capex renewals programmes but as part of our review of the CPP proposal we reviewed the proposed distribution transformer expenditure in some detail given the uplift in expenditure when compared to historical levels.

The WSP report

D310 WSP report contained a review of the distribution transformer asset class and made several observations, including that:

D310.1 data for distribution transformers was generally good, however, the accessibility of the data was not straight forward; it was spread over many separate documents and systems including GIS, spreadsheet, and PDF site inspection reports;

D310.2 Aurora network has 7,029 distribution transformers and 13 voltage regulators;

D310.3 ground-mounted types assumed to have asset life of 55 years at 40% capacity utilisation; pole-mounted usually not maintained and operated at 60% to 80% capacity utilisation; pole-mounted types are usually replaced after failure which is the industry approach, unless the asset location poses a safety risk; and

D310.4 failure rate data suggests that 10 distribution transformer units a year on average are failing.

D311 WSP concluded, based on its modelling, that 34 ground mounted and 25 pole-mounted distribution transformers were likely to pose a high safety risk, and 168 ground mounted and 160 pole-mounted distribution transformers were a medium safety risk, due to their age and proximity to the public.[384]

What the CPP Application says

D312 In its CPP proposal Aurora notes that:[385]

D312.1 the main investment drivers for this asset class is asset health and performance stating that without investment intervention 16% of distribution transformer assets will be in the H1 asset health indicator category by 2023-2024;

D312.2 performance of the distribution transformer fleet has generally been good over the past decade;

D312.3 the forecasting approach has been volumetric based on repex modelling using asset age and condition as proactive investment triggers; and

D312.4 unit rates are based on the average costs of historical distribution transformer replacement works.

Strata review of distribution transformer renewals

D313 Pole-mounted transformers constitute about 5% of the total capex portfolio, and we wanted to test how Aurora had justified this level of expenditure in greater detail. We engaged Strata for this purpose.

D314 In relation to the distribution transformer renewals, Strata's key findings included that:

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[384] WSP "Independent review of electricity networks - Final report - Aurora Energy" (21 November 2018), Section 10 p. 87-95.

[385] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), Section E.9 p. 123-126.

D314.1 Aurora's strategy in 2018 was to replace 500 pole mount transformers during the ten-year AMP forecast planning period, including converting 20 pole-mounted units to ground mounted units;

D314.2 public safety and condition are appropriate drivers in the CPP application, although Aurora has not clearly support an increase in pole-mounted transformer replacements over historical replacements in its application;

D314.3 WSP identified that 25 transformers had a high safety risk and 160 a medium safety risk, and it is reasonable to assume that, between 2018 and 2020, Aurora has identified and addressed these issues either through replacement, refurbishment or maintenance;

D314.4 a managed run to failure strategy is appropriate for ≤100 kVA pole-mounted distribution transformers;

D314.5 the low asset fleet failure rate does not, on its own, support a move to a proactive replacement approach;

D314.6 the primary driver of the expenditure uplift in this programme, above historical replacement rates, is a major $21.4 million pole to ground conversion programme that will take place on the Dunedin network over ten years for larger >200 kVA transformers;

D314.7 the pole to ground strategy for the larger transformer units should have warranted a business case including options analysis prior to inclusion in the CPP application. While the approach is likely to be supported due to safety and seismic considerations the case for this needs to be made more explicitly. Aurora's claim that the programme is critically optimised is also not supported by evidence;

D314.8 cost benchmarking gives reasonable assurance that Aurora's current unit costs are at an appropriate level for forecasting and the newly introduced competitive contracting environment and increased volumes of purchases should be delivering lower unit costs than historical rates; and

D314.9 there were no material issues found in the review of the ground mounted distribution transformer renewals programme and this expenditure meets the expenditure objective;

D315 Strata concluded that, for the pole to ground replacement programme, the proposed replacement of 32 transformers with a rating greater than 200kVA, should be deferred, until a suitable business case for the programme has been developed to support the accelerated replacement volumes, investment timing and investment priority.

D316 It has been assumed that this business case will not be available until the commencement of the CPP (2021-2022) and, consequently, the pole to ground replacement investments will not start taking effect until the second year of the CPP (2022-2023).

D317 Strata recommends that the replacement forecast for 20201-2022 and 2022-2023 should be reduced by 75% and 33% respectively to reflect the post business case approval timing. This conclusion has resulted in Strata recommending a deferral of $1.7 million of expenditure.

Our findings

D318 The primary driver of pole-mounted distribution transformer programme expenditure uplift, above historical replacement levels which are supported, is the pole to ground conversion programme for higher rated transformers (larger than 200kVA). Although a full business case for this has not been provided by Aurora, the approach is likely to be economic due to safety and seismic considerations.

D319 While we agree that safety and seismic considerations are not unreasonable investment drivers, Strata recommended that some of the pole-mounted transformer expenditure is deferred until the second year of the CPP (2022-2023). This will give Aurora time to develop the business case to support the proposed investment uplift strategy above historical levels of investment. We agree with this recommendation.

D320 Strata found no material issues in its review of the ground mounted distribution transformer renewals programme and concluded this expenditure meets the expenditure objective. We agree with this recommendation and agree that $1.7 million of deferred pole-mounted transformer capex does not meet the expenditure objective.

D321 Based on the analysis performed we have amended the proposed amount in the pole-mounted transformer renewals programme from $16.7 million to $14.9 million over the five-year CPP period and accept the proposed amount of $1.7 million in the ground mounted transformer programme. We consider that these amounts are likely to be prudent and efficient and meet the expenditure objective subject to a 5% efficiency adjustment.

Capex renewals – Secondary systems

Background

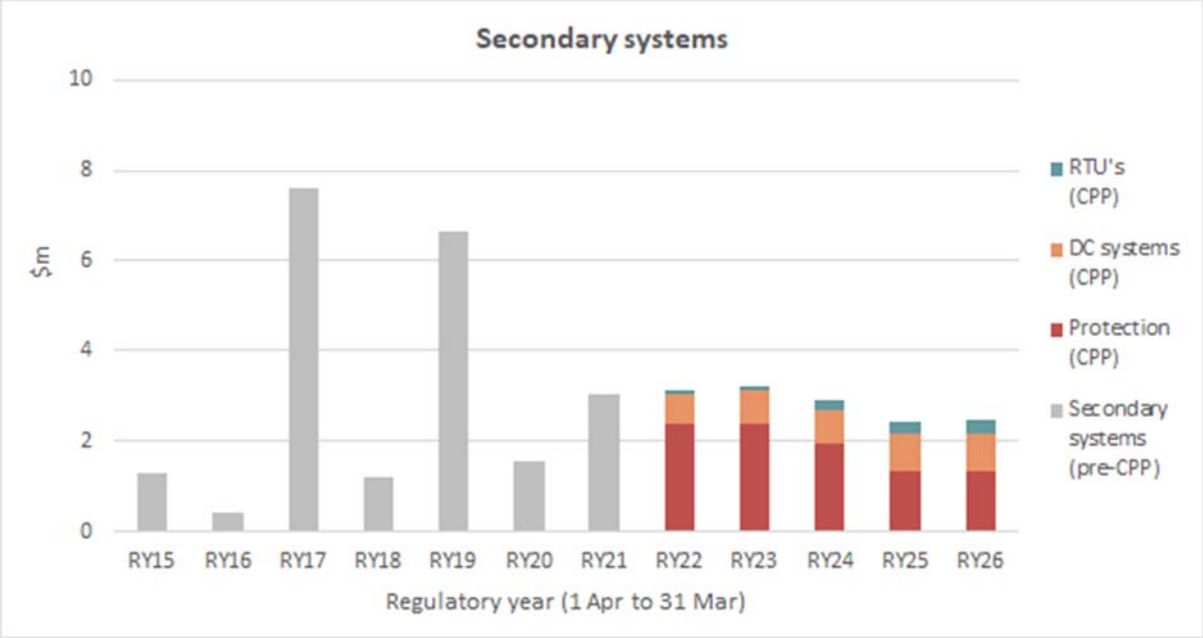
D322 Aurora is proposing to invest $14.1 million (see Figure D9) over the CPP period in its secondary systems renewals capex programme, which comprises:[386]

D322.1 $9.3 million for protection systems renewals;

D322.2 $3.8 million for DC systems; and

D322.3 $1.0 million for remote terminal units (RTU's).

Figure D9 Secondary systems renewals capex between 2014-2015 and 2025-2026



D323 Aurora considers that the secondary systems protection and DC systems expenditure is necessary due to protection relay obsolescence and limited functionality, poor performance of the existing protection relays, and end-of-life issues with the DC systems assets.

The WSP report

D324 The WSP review of Aurora's network identified protection as a key safety risk in Aurora's network.[387]

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[386] Remote Terminal Units (RTU's) are microprocessor-controlled electronic devices that provide the interface network primary assets (primarily at substation sites) to the SCADA (supervisory control and data acquisition) system. RTU primary function is to enable control and status indication of the substation primary assets.

[387] WSP Independent Review of Electricity Networks – Aurora Network Final Report s 17 p.165-180.

D325 The WSP report concluded at the time of its review that:

D325.1 protection system asset data was incomplete which posed a risk to effective asset management;

D325.2 there are 382 electromechanical relays (36% of the relay fleet) and 106 electronic relays (10% of the relay fleet) that are exceeding their expected life; this poses an elevated risk of failure;

D325.3 in a four-year period 20 faults on the HV network were not cleared by the immediately up-stream protection asset;

D325.4 there appears to be no protection strategy for the network; protection of similar assets at different locations have been implemented differently and there are no specific criteria used to protect different assets;

D325.5 dates on the protection setting calculations sheets are old and there does not appear to have been a recent review of protection system to ensure the protection schemes and settings are still appropriate;

D325.6 there is a high risk that the settings are not appropriate for the current loading and fault current characteristics of the network;

D325.7 five types of electromechanical relays are obsolete technology and are consistently losing calibration between maintenance cycles;

D325.8 failure of some protection relays to operate as intended has resulted in live conductors on the ground not being detected and de-energised;

D325.9 most substations only have a single battery and charger configuration resulting in a single point of failure that could impact the protection systems should they fail; approximately half of these do not have an alarm via SCADA to alert the control room of a battery charger failure; and

D325.10 historically instrument transformers have not been tested during maintenance; testing was implemented in 2018 for current transformers and a high rate of failure was found; the high failure rate and incomplete testing indicated an elevated level of risk on the network.

D326 WSP concluded that, the protection system assets posed a significant safety risk and their remediation should be assigned a high priority.[388]

[388] WSP Independent Review of Electricity Networks – Aurora Network Final Report Table 17.9 p.180. WSP also listed in detail each protection system safety risk at each Aurora zone substation site in in its report.

D327 Since the WSP report was published in November 2018, Aurora has been addressing the protection safety risk issues and providing us with quarterly progress updates.[389]

Protection relays - what the CPP application says [390]

D328 In its CPP proposal Aurora notes that:

D328.1 the protection fleet comprises a significant number of legacy type electromechanical relays that provide basic protection functionality and there are concerns about relay reliability;

D328.2 there are protection relay obsolescence issues and a reduced number of staff that can maintain them;

D328.3 there have been significant protection maloperation incidents with the older electromechanical relays and the WSP report summary is referenced to reinforce the investment need;

D328.4 an age-based volumetric forecasting approach has been used with estimated unit costs reviewed by an external consultant; and

D328.5 relay obsolescence is being used to prioritise the replacement plan.

DC systems and RTU's - what the CPP application says [391]

D329 In its CPP proposal Aurora notes that:

D329.1 DC systems are used to provide 12 V to 110 V DC power supplies to metering, communications, supervisory, control and protection assets within zone substations and at GXPs; they ensure continued operation of these systems when AC supply may be interrupted; the two main components of DC systems are batteries and battery chargers;

D329.2 the main driver for the proposed DC systems expenditure is to replace batteries that have reached end-of-life; Aurora state that these battery systems are not redundant, and they need to be operational? to meet good industry practice;[392]

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[389] WSP Action Plan – Annual Progress Report available at https://www.auroraenergy.co.nz/assets/Independent-Review-Mar-2018/Aurora-Energy-Annual-Update-on-WSP-Action-Plan-31July-2020.pdf

[390] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), Section E.9.4 p.126-129.

[391] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), Section E.9.4 p.126-129.

[392] Aurora Energy "Asset Management Plan April 2020 - March 2030 - Aurora Energy's CPP Application" (12 June 2020), Section 8.7.3 p. 337, available at: https://comcom.govt.nz/__data/assets/pdf_file/0026/219158/Asset-Management-Plan-April-2020March-2030-Aurora-Energys-CPP-Application-12-June-2020.PDF.

D329.3 Aurora states that many of the batteries are in locations without a temperature-controlled environment and large temperature ranges depending on the season; this has an impact on battery life;

D329.4 Aurora takes a volumetric planning approach with costs based on unit rates although it has not stated how these unit rates were derived or whether these are reviewed; and

D329.5 the historical expenditure on secondary systems has varied significantly, primarily driven by the large RTU replacement program during 2016-2017-2918-2019.

What the Verifier said

D330 The Verifier's reviewed the secondary systems – protection renewals programme, and concluded that:[393]

D330.1 the AMP 2018-28 provided a good outline of Aurora Energy's approach to managing its network assets and to manage risks related to the protection fleet; it translates the intention of its policies to management plans that guides operational asset management activities;

D330.2 expected life and asset age is a reasonable proxy for increasing failure rate and future obsolescence for protection relays and is consistent with industry practice for protection relays;

D330.3 the replacement strategy is based on asset obsolescence and asset age; prioritisation of replacement has been based on failure consequence and the need to coordinate with zone substation projects which was a reasonable approach;

D330.4 benchmarking with two other Australian industry distributors supports the reasonableness of the forecast replacement volumes;

D330.5 Aurora's proposed annual replay replacement rate of 6% over the CPP is necessary to meet safety objectives and is not unreasonable;

D330.6 no aspect of this renewals programme was contingent or part of a contingent project;

D330.7 there are a range of interactions with other capex programmes, such as the zone substation renewals and opex; Aurora understands these interactions and has addressed the effects reasonably;

[393] Farrier Swier "Verification Report – Aurora Energy CPP Application" (8 June 2020) Appendix C.12 p.215-220 and Appendix D.12 p.413-420.

D330.8 the Verifier is satisfied with the proposed unit cost estimate based on the assessment of cost data benchmarking and asset scope review;

D330.9 proposed forecast volumes are supported based on the assessment of asset age information and assumptions, modelling logic and age-based replacement profile, asset life assumptions and scheduling priority over the period; and

D330.10 a number of improvement initiatives were also identified such as improving asset attribute and condition data, asset life extension and the introduction of benchmarking to test asset management practices and unit costs.

RFI – Network protection systems [394]

D331 While we understood Aurora's plans to upgrade its protection systems in the CPP proposal we wanted to understand how Aurora has been addressing the network protection issues identified in the WSP report. We wanted to understand what it intends to do before the start of the CPP period, to address the high priority safety risks identified as Priority Level 2 risks in Table F.1 of the WSP report, specifically:

D331.1 how protection system issues are being addressed and prioritised, particularly how Aurora is providing adequate protection coverage as old electro-mechanical relays are replaced;

D331.2 when redundant battery systems will be installed at zone substation sites;

D331.3 what progress has been made to ensure that existing protection settings, calculations, and protection relay input variables are fit for purpose;

D331.4 how Aurora has addressed the noted protection performance issues at the Costorphine, Green Island, Queenstown, Smith St, South City, St Kilda, Willowbank and Neville St zone substations; and the high-risk electromechanical relays at Halfway Bush GXP, North City and Ward St zone substation; and

D331.5 whether Aurora has tested the condition of instrument transformers which feed network information to the protection relays;

D331.6 how the circuit breaker maintenance issues at the Alexandra, Arrowtown and Green Island zone substations have been or will be addressed; and

D331.7 plans to address the Outram zone substation circuit breaker risk.

[394] RFI Q008 - Network protection systems and WSP Action Plan – Annual Progress Report 31 July 2020.

D332 Aurora responded stating that:

D332.1 protection systems are prioritised in concert with other Aurora assets using Aurora's risk matrix; several sites have additional risks associated with other asset classes and they are prioritised over sites that only have risks associated with the protection relay asset class;

D332.2 where sites are being renewed, redundant DC systems are being installed; the remaining sites have a specific programme of work that is in progress with 10 sites issued for the coming year and the programme expected to be complete by the end of 2024-2025;

D332.3 protection reviews are being carried out on the various sub-transmission networks; a summary of progress on these is in the attached Protection Systems Report provided to the Commerce Commission in March 2020. A sample protection grading report is also attached; the March 2020 summary of progress report Table 6 provides an update on the protection issues identified by WSP in Table F.1 and how these are coordinated with the wider renewals programme;

D332.4 Aurora has established a two yearly protection system inspection and testing programme, and this includes the associated instrument transformers; and

D332.5 Outram zone substation replacement is currently out for tender with construction expected in 2020-2021; information on the proposed work at Alexandra and Green Island substations can be found in the attached Protection Systems Report provided to the Commerce Commission in March 2020.

D333 We are satisfied that Aurora is adequately addressing the protection issues raised by WSP in a timely manner. Protection system upgrades are being prioritised and, where appropriate, coordinated with the wider asset renewals programmatic work following application of Aurora's criticality/prioritisation framework.[395]

Strata review of DC systems and RTU's

D334 While the DC systems and RTU expenditure comprised only a small part of the capex programme we wanted to test how Aurora had forecast replacements and if adjustments needed to be made. For this we engaged Strata to take a high-level assessment approach and make recommendations.

D335 Regarding RTU's, Strata concluded that:

[395] RFI Q008 - Network protection systems.

D335.1 the RTU expenditure forecast was based on a repex age-based volumetric model that included probability of failure effects;

D335.2 no post repex model adjustments made by Aurora to the expenditure forecasts were apparent. This indicated that modelled outputs were accepted without challenge or that the results were resilient to challenge, which would be very unusual for age-based replacement programmes;

D335.3 Aurora identified several RTU types which are obsolete, and that functionality is the primary driver for planned RTU replacement volumes; and

D335.4 Aurora has deferred replacements of RTU's in 2020 and 2021 into the CPP period and there is no reason given for this.

D336 Strata recommended that Aurora should take the opportunity to replace one large and one small RTU in 2021 as part of its RTU repex strategy. Bringing forward RTU expenditure like this would have the effect of reducing the proposed expenditure by $230,000 over the CPP period.

D337 We agree with Strata that there is no reason why the RTU expenditure in 2020 and 2021 has been deferred and agree with Strata's recommendation that bringing forward some of this expenditure is reasonable. On this basis we agree that the allowance in the RTU programme should be reduced from $1.0 million to $0.8 million.

D338 Regarding DC systems, Strata concluded that:

D338.1 it was unable to fully determine if the DC systems expenditure was included in the zone substation capex category or not;

D338.2 most batteries do not have redundancy, so single cell failure can result in loss of substation control and protection.

D338.3 Aurora currently has a backlog of overdue battery renewals and plans to address this over the next 10 years;

D338.4 Aurora's strategy is to replace redundant battery systems at 8 years and non-redundant battery systems at 5 years, which is quite conservative; and

D338.5 the backlog of replacements is quite significant with 11 replacements in 2021 for N redundancy 110 V DC systems; and 10 replacements in 2021 for N redundancy 24 / 48 V DC systems.

D339 Strata concluded that, while it accepted that the risks associated with the N-security DC systems must be managed and reduced, it could not fully conclude that the current replacement strategy was prudent and efficient and was considered against an optimal risk/cost point.

D340 Strata further stated that the expenditure will be required but could probably be justified against a more appropriate strategy. In conclusion Strata made no recommendation about reducing the proposed amount of $3.8 million following its review.

D341 We understand that in many asset classes Aurora is operating at a low level of asset management maturity and has, in many cases, a poor understanding of asset condition. DC systems appears to be one such asset class where risk-based decision-making using asset health models as an input has not been developed by Aurora.

D342 We are mindful that protection systems and the associated secondary equipment, such as DC systems, was identified by WSP as one the key safety risks in the Aurora network.

D343 Given the present situation we are willing to accept that there may be an absence of 'optimality' about some forecasts when a key safety issue is apparent, such as when network protection, which functions to protect assets, staff working on network assets and the public, does not meet industry standards. On this basis and given that there is such a backlog of replacement needed, we will accept the proposed DC systems expenditure of $3.8 million.

Our findings

D344 We have reviewed the CPP Application material and the Verifier's analysis of the protection relay renewals programme, as well as the State-of-the-Network report that was carried by WSP in anticipation of a CPP.

D345 We consider that the Verifier's analysis has been robust and has sufficiently tested the protection relay renewals capex programme of expenditure against the requirements of the IMs and can be relied on.

D346 We tested Aurora about its ongoing work to address the safety issues identified by WSP and are satisfied that Aurora is taking steps to ensure that it has adequate protection coverage of its network prior to the CPP taking effect. This is a key safety risk for Aurora, and it is aware of its existing protection portfolio issues and is taking urgent steps to address these.

D347 Given the present and potential safety issues related to the ageing protection relay fleet, identified by WSP and discussed by Aurora in its application, the end-of-life and redundancy issues with the DC systems, we propose that the $9.3 million protection relay renewals capex is prudent and efficient and meets the expenditure objective subject to a 5% efficiency adjustment.

D348 We also engaged Strata to review the $1.0 million Remote Terminal Unit (RTU) and $3.8 million DC systems renewals expenditure. Strata recommended we adjust the RTU approval amount to $0.8 million because some expenditure could be brought forward into 2020/2021. We agree that this recommendation is reasonable.

D349 Strata made no recommendation about a reduction of the proposed $3.8 million DC systems expenditure. Strata was not convinced that the DC systems replacement strategy was prudent and efficient. However, given the backlog of expenditure required and that this expenditure supports the protection systems, a key safety risk identified by WSP, we have accepted that the proposed DC systems expenditure is likely to be needed.

D350 In summary we agree with the Strata analysis of the RTU and DC systems and propose that:

D350.1 $0.8 million of RTU renewals capex is prudent and efficient and meets the expenditure objective subject to a 5% efficiency adjustment; and

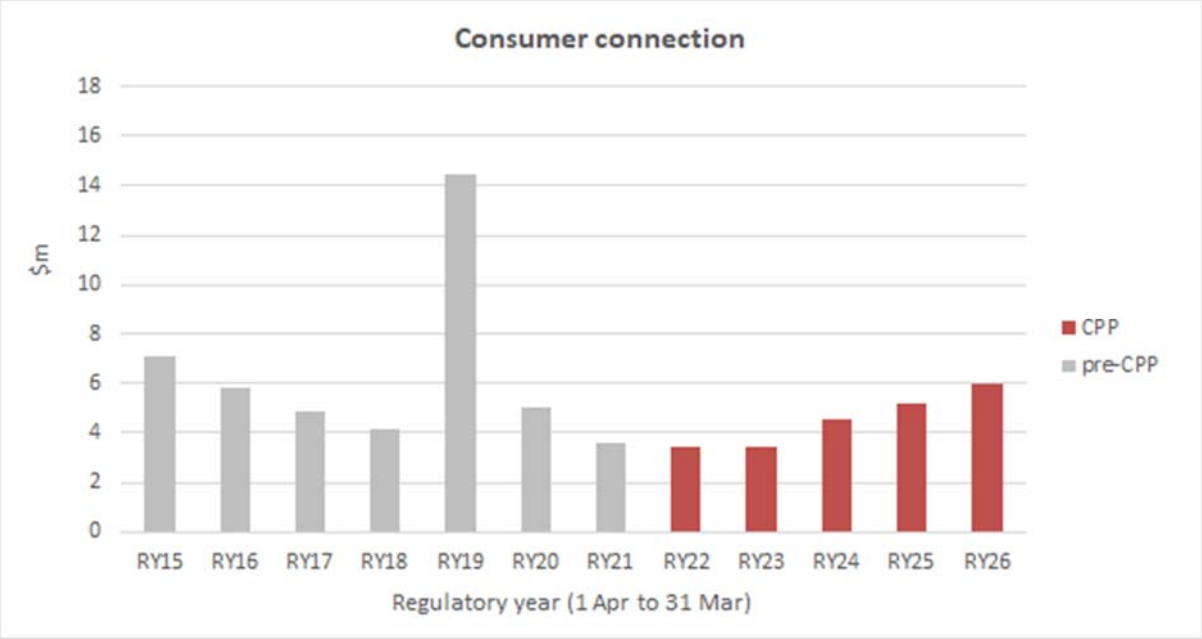
D350.2 accept that $3.8 million of DC systems expenditure is likely to be prudent and efficient and meets the meets the expenditure objective subject to a 5% efficiency adjustment.

Capex programme – Consumer connections and asset relocations capex

Background

D351 Aurora is proposing to invest $22.6 million (see Figure D10) over the CPP period in its consumer connections capex programme and $3.8 million for asset relocations.

Figure D10 Consumer connections capex between RY15 and RY26



D352 Aurora considers that the proposed expenditure is necessary to establish new consumer connections or to alter existing consumer connections and excludes the consumer contribution. Aurora's policy is to require all new consumer connections to contribute to the cost of the new connection.

What the CPP Application says

D353 In its CPP proposal material Aurora notes that:[396]

D353.1 the volumes of new connections are driven by population growth and economic activity;

D353.2 the forecast is based on historical spend, with the forward projection based on an average of the previous five-year expenditure, and any identified step change loads;

D353.3 a customer contribution rate of 60% has been assumed for the cost of new connections;

[396] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), Section G.4 p.151-153.

D353.4 Covid-19 effects have been included with a 20% reduction assumed in RY21 and 25% in RY22 and RY23; and

D353.5 contribution levels of 60% are in line with other Electricity lines companies.

What the Verifier said

D354 The Verifier reviewed the consumer connections programme and concluded that:[397]

D354.1 the customer connections policy has been reviewed and was amended to expect new customers to contribute 60% of the new connection cost;

D354.2 the assumption that base forecast gross connection expenditure (except for the impact of ovid-19 and identified loads) will align with historical expenditure, is not unreasonable;

D354.3 Aurora's Covid-19 impact reductions are not unreasonable although this is not fully aligned with the way it has forecast it's opex;

D354.4 due to ovid-19 effects Aurora has deferred three tourism-related connection upgrades beyond RY26;

D354.5 that while the contribution rate of 60% is not unreasonable that we should investigate whether this is realistic; and

D354.6 due to Covid-19 considerations, a major tourism operator driven connection should be contingent, affecting $2.1 million of expenditure.

D355 Based on the information provided by Aurora, the Verifier concluded that the consumer connections capex of $22.6 million was verified. However, we agree that $2.1 million should be considered contingent and propose that $20.5 million of the proposed $22.6 million meets the expenditure objective at this time.[398]

D356 We also tested the asset relocations capex at a high level. This expenditure seems reasonable and is consistent with historical expenditure, being 25% less than the previous five-year period, mainly due to the change in Aurora's capital contributions policy.

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[397] Farrier Swier "Verification Report – Aurora Energy CPP Application" (8 June 2020) Appendix C.15 p.239-245.

[398] We intend that Aurora will be able to utilise our proposed IM variation contingent project re-opener provision to seek approval when demand is more certain.

RFI - Consumer connections capex contribution rate [399]

D357 We sought further information from Aurora using the RFI process to test the process it had used in determining the 60% contribution rate, and whether it had consulted with its wider customer base.

D358 We were also interested to understand how this 60% contribution compared with other electricity lines companies and whether its existing consumers agreed with the 40% subsidy for new connections.

D359 Aurora noted that the electricity lines companies that subsidise consumer connections and/or asset relocations, do so at rates between 3% (Top Energy) and 100% (The Lines Company and Westpower). The average subsidy rate is 53% and the median is 50%. There is no consistency.

D360 Aurora provided some background information on its contribution practices stating that it needed to contribute to new connections in response to:

D360.1 "aggressive" incursions by Electricity Southland Limited/PowerNet (both as a grid-connected and embedded competitor); and

D360.2 larger developments in the Queenstown/Wanaka areas qualifying as 'economic' under its large connection capital contribution calculation methodology, with no capital contribution.

D361 Aurora noted that there are benefits of encouraging new connections, even if these are subsidised, such as common costs being spread amongst a larger consumer base, but that competition with Electricity Southland Limited/PowerNet has a "deleterious" effect mainly because there is duplicated effort and assets, and potential safety issues for staff and network being mis-identified.

D362 Aurora confirmed that it had not consulted with its consumers about the present contribution rate for consumer connections and asset relocations.

D363 The Verifier tested the modelling approach and how the Covid-19 effects have been incorporated and agrees that the Aurora forecast is reasonable and meets the expenditure objective.

Our findings

D364 We have reviewed the CPP Application material and the Verifier's analysis of the consumer connection capex programme.

[399] RFI Q011 - Consumer connection capital contribution.

D365 We consider that the Verifier's analysis has been robust and has sufficiently tested the consumer connection capex programme of expenditure against the requirements of the IMs and can be relied on.

D366 We tested the contribution rate assumptions with Aurora and consider that the variable subsidy across industry is something may investigate in the future. The information provided by Aurora, highlighted also by electricity lines company Information Disclosure data, demonstrates that there are a range of contribution rates from 0% to 100% across industry and their application by electricity lines companies seems entirely discretionary.

D367 We also tested the asset relocations capex at a high level. This expenditure seems reasonable and is consistent with historical expenditure, being 25% less than the previous five-year period, mainly due to the change in Aurora's contributions policy.

D368 The Verifier concluded that due to Covid-19 considerations, a major tourism operator driven connection should be treated as contingent, affecting $2.1 million of consumer connection capex. We have agreed with this conclusion. If this tourism connection becomes more certain, Aurora can utilise our proposed reconsideration mechanism (see Attachment J) and seek approval for additional funding.

D369 Based upon the analysis we have undertaken and the findings of the Verifier, we propose that $20.5 million of the proposed $22.6 million of consumer connections capex, and $3.8 million of asset relocations capex is likely to be prudent and efficient and meets the expenditure objective subject to the 5% efficiency adjustment.

Capex programme – Minor capex

Background

D370 Aurora's proposal contains several minor capex programmes that we did not scrutinise in detail. These include:

D370.1 $1.4 million for reliability, safety, and environment (RS+E) capex;

D370.2 $1.4 million for future networks capex; and

D370.3 $2.9 million for facilities capex.

D371 As part of its review work Strata reviewed at a high level the Facilities capex programme.

Reliability, Safety, and Environment (RS+E) [400]

D372 The key drivers for RS+E investments are to improve performance and quality of service received by customers. Typically, these investments reduce the impact of outages, increase network controllability, address poor performance issues, and facilitate cost reduction through automation.

D373 Between 2015 and 2020 Aurora has been spending about $1.9 million on average per annum in this category and has not forecast expenditure over the CPP period until RY25. Its states its plan is "focused on mitigating safety risk and meeting required growth needs of the network rather than investing to directly improve reliability".

D374 Beyond 2023-2024 Aurora plans to install:

D374.1 auto-reclosers to reduce the number of consumers affected by planned/unplanned interruptions;

D374.2 remote controlled switches on feeders to reduce the average time that consumers are affected by unplanned interruptions; and

D374.3 fault passage indicators to reduce the time taken to find faults, reducing the average time consumers are affected by unplanned interruptions.

D375 There is no explanation in Aurora's CPP application about the significant historic expenditure in RS+E and the decline over the CPP period, although in its 2020 Asset Management Plan Aurora state that the CPP is focussed on mitigating safety risk and meeting required growth rather than investing to improve reliability and that Aurora's general renewals investments target all the drivers within the RS+E category.[401]

D376 Given the significant reduction in the forecast expenditure when compared to the 2014-2015 to 2019-2020 period, we did not fully review this category of expenditure, and are willing to accept that the proposed $1.4 million of reliability, safety, and environment capex meets the expenditure objective subject to the 5% efficiency adjustment.

[400] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), Section G.6 p.155-157.

[401] Aurora 2020 Asset Management Plan, Section 6.7 p.122.

Future Networks [402]

D377 Aurora is seeking approval for approximately $1.4 million for a range of investments to increase visibility of its low-voltage network in preparation for small scale distributed connection of electric vehicles (EV's), storage batteries and solar power panels (PVs) for example.

D378 Most electricity lines companies have limited monitoring of their low-voltage networks; which can comprise approximately 40% of the network total circuit length. The connection of the distributed devices noted above can significantly change the existing power flow patterns in low-voltage networks. So, improving monitoring is likely to be a prudent investment for the future.

D379 Additionally, the network monitoring capability that a future networks portfolio adds, can also be used to monitor possible consumer voltage regulation issues and incipient faults in a network; so this expenditure can have multiple uses.

D380 Based on our limited review of the CPP Application material, we conclude that the proposed amount of $1.4 million for future networks capex is likely to meet the expenditure objective, subject to the 5% efficiency adjustment.

Facilities

D381 Aurora classes facilities capex as asset management enabling expenditure that:[403]

> "aims to ensure that our offices and stores are safe and secure for our employees and contractors, are functional and fit for purpose, support improved productivity and efficiency, and are cost effective to procure and operate. They must also be sized to support future staff growth and materials storage requirements."

D382 A key driver for the expenditure is to house equipment and to accommodate the staff required to implement the work programme. Aurora state that it will need to invest during the CPP period.

D383 The forecasting is based on base, step and trend modelling with the base amount calculated as an average expenditure over prior years and the step largely due to office refurbishment cost estimates. There was no trend effect included in the forecast modelling.

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[402] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), Section G.7 p.157-158.

[403] Aurora Energy "Asset Management Plan - April 2020 - March 2030" (12 June 2020) and Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), Section 9.4 p. 364

D384 The ongoing forecast capex costs of about $0.6 million per annum contrast with the fact that prior to 2017-2018 there was no explicit historical capex costs. This may be due to the previous arrangement with Delta. A review of the 2016 AMP, when Delta was the single provider for Aurora, reveals that there were no explicit historical facilities capex either.

D385 We engaged Strata to review this expenditure as part of our high-level review of some proposal minor capex programmes. Strata observed that it expected a forecast of facility equipment could be achieved by comparing the historical expenditure with the asset values and projected depreciation but that this had not been carried out.

D386 Aurora had not provided any detail about its use of a historical average expenditure nor any explanation of an upward adjustment, apart from increased staff numbers, which is likely to be a reasonable driver.

D387 Strata concluded that based on the absence of information it was unable to conclude the expenditure was reasonable and prudent but that given the low value of the forecast, did not recommend an adjustment.

D388 We note that Aurora's proposed expenditure in this category is consistent with the expenditure in 2017-2018 and that the forecast is based on the average between 2017-2018 and 2019-2020 (and ignores the proposed large expenditure in 2020-2021 of nearly $1.1m). Given the new business model, as Aurora fully detaches from Delta, is still settling, it is probably reasonable to assume that there is still some uncertainty about what a business-as-usual level of facilities capex is.

D389 Based on our review of the CPP Application and Strata's review we conclude that proposed amount of $2.9 million for facilities capex is likely to be reasonable in the circumstances and meets the expenditure objective.

Our findings

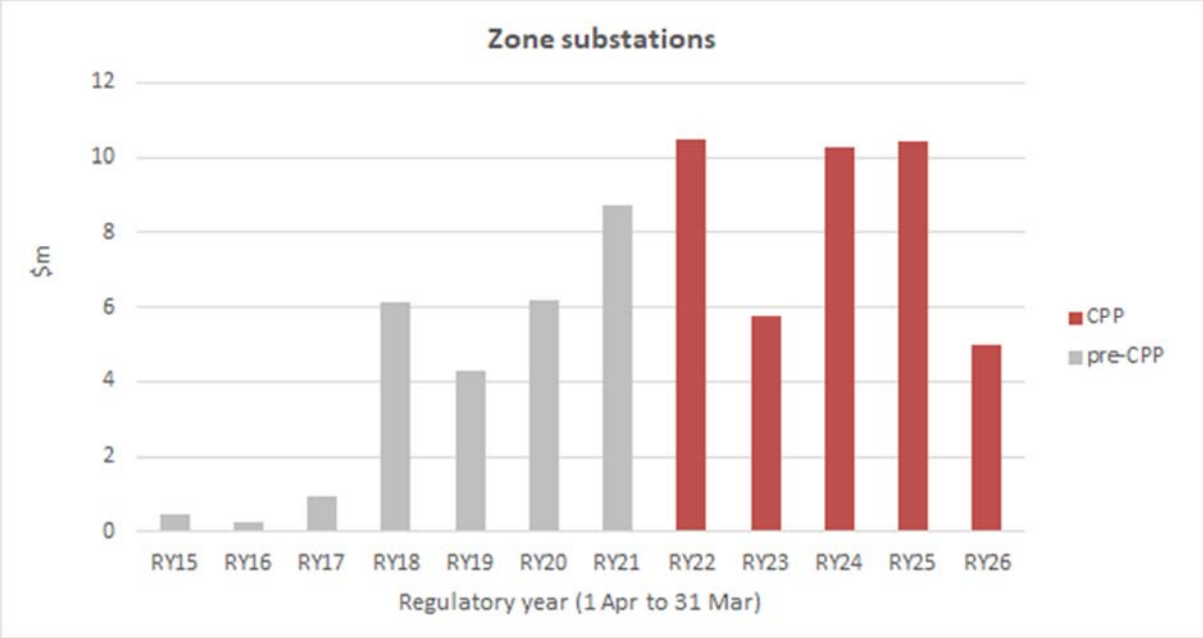
D390 After a high-level review we propose that the proposed $2.9 million for facilities, $1.4 million for reliability, safety, and environment and $1.4 million for future networks capex is likely to be prudent and efficient and meets the expenditure objective, subject to a 5% efficiency adjustment.

Capex renewals – Zone substations

Background

D391 Aurora is proposing to invest $41.9 million over the CPP period (see Figure D11) in its zone substations renewals programme due to asset condition, safety, and reliability reasons. The proposed expenditure is 60% higher than the previous five-year period in the zone substations asset class.

Figure D11 Zone substations renewals capex between 2014-2015 and 2025-2026



D392 The zone substations (ZSS) renewals programme is proposed to replace and refurbish transformers, and indoor and outdoor switchgear. The Verifier assessed all three of these asset classes in its review.

The WSP report

D393 The WSP report made several observations and identified a range of issues in the zone substations asset class. Some of these observations and issues included that:[404]

Zone substation transformers

D393.1 analysis of transformer oil has been carried out and is common industry practice; the ZSS transformers appear to be in a serviceable condition;

D393.2 there were no base line oil test results so there is a risk that the results may indicate a better than actual internal transformer condition;

[404] WSP Independent Review of Electricity Networks – Aurora Network Final Report Sections 15 p. 136-148 and Section 16 p. 149-164.

D393.3 test reports showed that the transformer tap changer fleet was in an acceptable condition, except for five tap changers (7.9%); there were 24 tap changers overdue for maintenance by between one and seven years;

D393.4 bunding around each transformer to contain oil leaks has been established at all but six substations;

D393.5 Aurora has a mobile substation with connection points at most of the single transformer substations to provide support in case of a transformer failure;

D393.6 East Taieri zone substation was identified as posing a safety risk, classified as moderate; it is located adjacent to a petrol station but does not have any physical protection in place to protect the petrol station in case of a serious failure and/or fire;

D393.7 transformers at two zone substations are in poor condition, although one was in the process of being decommissioned at the time of the review; and

D393.8 there were eight transformers (12.7%) identified as high risk to reliability, predominately due to the transformer internal condition and tap changers.

Indoor and outdoor switchgear

D393.9 129 circuit breakers (31%) have exceed their expected lives;

D393.10 the inspection, testing, and maintenance of ZSS circuit breakers is incomplete with 25 circuit breakers had not been maintained within the required maintenance schedule;

D393.11 some of the specific types of circuit breaker in-service on the Aurora network have been identified in the electricity industry as having an elevated risk of failure, namely the HLC, HKK and LMT models;

D393.12 some switchboards are not rated to contain an arc fault and pose an elevated safety risk to field crew; and

D393.13 some indoor circuit breakers have been installed in custom built outdoor enclosures which are not fully sealed from the environment; resulting in an increased rate of deterioration and probability of failure.

D394 WSP concluded that ZSS transformers currently pose a moderate risk to network reliability and a low risk to public safety, except at East Taieri, and that ZSS circuit breakers pose a moderate risk to network reliability and worker safety.

What the CPP Application says

D395 In its CPP proposal Aurora notes that:[405]

D395.1 the power transformer replacement need is based on condition; with an ageing fleet with poor condition tap changers and limited spares, and reliability considerations; equipment failures are costly to repair and result in prolonged outages;

D395.2 the indoor switchgear replacement need is based on condition with an ageing fleet of oil circuit breakers, many that have exceeded life expectancy, reliability considerations, and safety risk due to arc flash exposure;

D395.3 the outdoor switchgear replacement need is based on asset condition; with an ageing fleet of oil circuit breakers that lack spares, reliability considerations, and safety risk due to arc flash exposure;

D395.4 Aurora has taken an asset health/asset criticality risk-based approach to prioritise interventions in the power transformers and indoor switchgear asset renewals programmes and an asset health-based prioritisation for the outdoor switchgear asset renewals programme;[406] and

D395.5 the forecasting approach is based on the risk analysis outputs and cost estimates based on the updated unit cost price book; projects are coordinated where appropriate and Figure 62 of the CPP Application details the zone substation project plan.[407]

Zone substation assets - what the Verifier said

D396 The Verifier's analysis of the zone substation asset class concluded that:[408]

D396.1 the AMP material has been the main source of policies and planning standards for the power transformers, indoor circuit breakers and outdoor circuit breakers asset classes; the Aurora Project Overview Document in this asset renewals programme provides a more matured approach;

D396.2 key modelling inputs and assumptions that underpin the investment drivers for the power transformers are informed by a risk management framework that considers both asset health and criticality;

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[405] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), Section E.8.7 p. 117.

[406] We asked Aurora if it planned to develop asset criticality modelling for its outdoor switchgear fleet and it confirmed that this work was planned and would assist in prioritising expenditure – RFI Q009 - Capex programme areas for investigation recommended by the Verifier.

[407] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), Section E.8.4–E.8.7, p.110-117.

[408] Farrier Swier "Verification Report – Aurora Energy CPP Application" (8 June 2020) Appendix C.7 p 183-190, Appendix C.8 p. 191-196, Appendix C.9 .197-202 and Appendix C.10 p. 203-208.

D396.3 the asset criticality framework contains a variety of modelling inputs such as network security, load type, load magnitude and transfer capability;

D396.4 to short list options, numerous criteria to address investment need are considered, such as safety, cost effectiveness, and alignment with GEIP amongst other considerations; the preferred investment options are refined using Aurora unit cost price book;

D396.5 unit costs for the power transformer asset class were benchmarked against industry peers and were generally found to be reasonable; and

D396.6 power transformer failure rates were compared against NZ and Australian data and found to be higher and provide further support for investment need.

D397 The Verifier concluded that it fully verified the forecast for the zone substations renewals expenditure. We have not explicitly discussed the Verifier's review of the indoor and outdoor switchgear in this attachment after our own review of Aurora's risk-based decision-making framework, which supports switchgear investment need and prioritisation

Our findings

D398 We have reviewed the CPP Application material, the Verifier's analysis of the zone substations renewals programme, as well as the State-of-the-Network report that was carried by WSP in anticipation of a CPP.

D399 Aurora has identified the need for asset replacement or refurbishment based on asset condition, safety, lack of spares, and reliability considerations. Aurora has taken an asset health/asset criticality risk-based approach to prioritise interventions in the power transformers and indoor switchgear asset renewals programmes and an asset health-based prioritisation for the outdoor switchgear asset renewals programme.

D400 This approach demonstrates a high degree of asset management maturity and provides confidence that the investment need and timing can be relied on.

D401 Asset replacement costs are likely to be current and reflective of industry based on the Jacobs price-book review carried out in support of the proposal. Additionally, with Aurora's move towards engaging multiple service providers with its new FSA contracting model, competitive prices for asset replacement and refurbishment should result.

D402 Based on these considerations we propose that the $41.9 million of forecast expenditure in the zone substations renewals programme is likely to be prudent and efficient and meets the expenditure objective subject to a 5% efficiency adjustment.

ICT capex and opex

Background

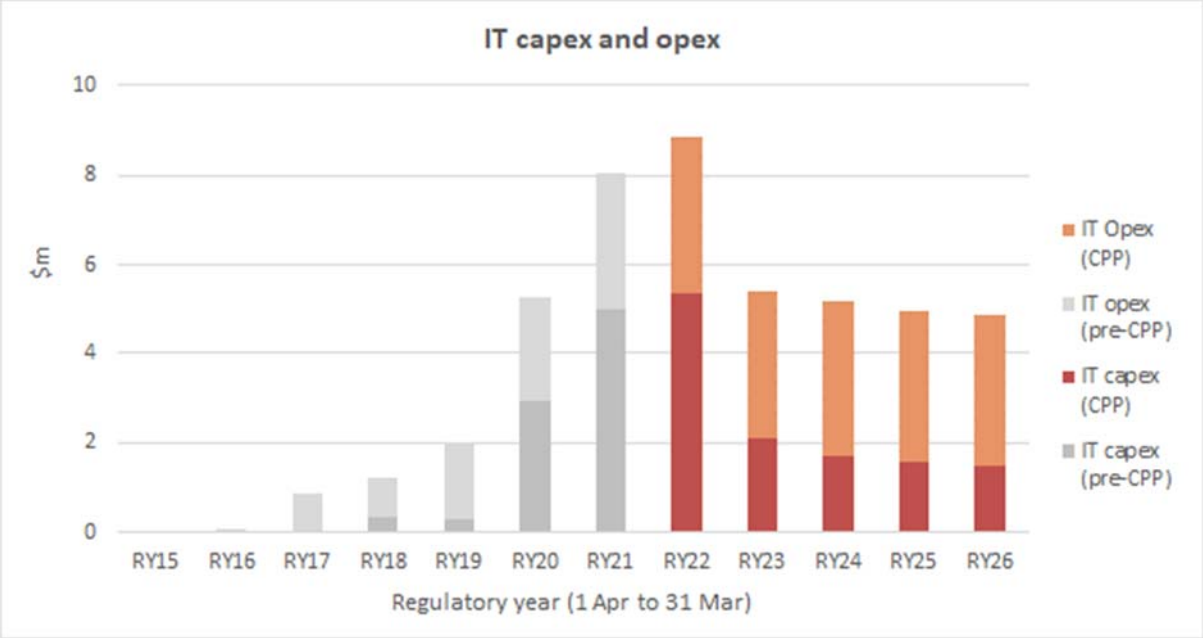
D403 Aurora is proposing to invest $29.2 million over the CPP period (see Figure D12) in its ICT capex and opex programme to support and enhance the infrastructure, information services and applications that support the electricity business.

D404 The Aurora ICT programme comprises:

D404.1 $12.2 million for ICT capex – which is a 43% increase when compared to the previous five-year period; and

D404.2 $17.0 million for ICT opex – which is a 93% increase when compared to the previous five-year period.

Figure D12 ICT capex and opex between RY15 and RY26



What the CPP Application says

D405 In its CPP proposal Aurora notes that:[409]

D405.1 prior to July 2017, Aurora's ICT services were subcontracted to Delta as a management charge, minimising costs in the short-term; this left Aurora with a backlog of lifecycle expenditure;

[409] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), Section J.1 pages 191-196.

D405.2 total ICT expenditures will return to RY20 levels in RY24 once new tools and technologies required to support the asset management strategy have been deployed;

D405.3 it is managing its new and existing ICT infrastructure into cloud-based hosting to provide greater scalability, and to lower infrastructure costs; this will be timed and sequenced to balance risks, costs, and benefits;

D405.4 priority for ICT in the CPP period is to deliver the information and process automation required to implement the asset management strategy; establishing an Enterprise Asset Management system capability; priority gaps are data integrity and asset management tool development;

D405.5 base step and trend for opex forecasting has not been used due to lack of suitable historical data; a bottom-up approach has been taken and this was subject to peer review and challenge which amended initial estimates of the six-year plan (RY20 to RY25) from $51 million to $37 million; and

D405.6 Aurora states that its benchmarking analysis undertaken at the request of management and the Board shows its non-network operating expenditure is forecast to remain below industry average during the CPP period.

What the Verifier said

D406 The Verifier's analysis of the ICT programme concluded that:[410]

D406.1 the main source of policies and planning standards for the ICT programme was reviewed; the Aurora Information Systems Strategic Plan 2025 (ISSP 2025) was based on a Deloitte review that outlined the priorities for the implementation and upgrading of ICT applications;

D406.2 Aurora has carried out numerous independent reviews to frame its ICT investment need; Deloitte in 2016, Covaris in 2017 and Deloitte in 2019; these reviews made a number of recommendations about ICT investment needs; these reviews resulted in the ICT strategy that underpins much of the proposal;

D406.3 the capex strategy is focussed on software platforms to improve data and asset management systems, while the opex strategy is focussed on improving the data integrity, and integration of the systems to support business decisions and the move to the cloud-based strategy;

D406.4 ICT capex forecasting based on Deloitte review and ISSP strategy document; most of the need is discrete focus areas that were either not in place or needed to be upgraded such a new AMS, upgrade of GIS, new FMIS and new customer billing systems;

[410] Farrier Swier "Verification Report – Aurora Energy CPP Application" (8 June 2020) Appendix C.16 p.246-208

D406.5 ICT opex forecasting based on a move away from an asset centric ICT environment to a cloud-based environment; bottom-up approach is appropriate given maturity of ICT and tested against a range of investment drivers;

D406.6 Aurora has undertaken detailed analysis when examining each need identified during the internal discussions and assessing the optimal timing required to introduce and implement the new or upgraded applications;

D406.7 a four-stage peer review process was used to refine forecasts; assess the current state of ICT capability; discuss future requirement; bottom-up plan to address need; and challenge by Board, GM and CPP Governance Group;

D406.8 ICT capex and opex forecasts are high-level estimates based on market research that Aurora has carried out, with internal challenges on unit rates; benchmarking was carried out with other businesses who have recently implemented asset management frameworks and this revised down estimates from $6.5 million to $3.4 million;

D406.9 Aurora has a procurement standard for ICT which is consistent with standard industry practice based on the Verifier's industry experience;

D406.10 ICT capex and opex will have benefits in work scheduling, cost control and delivery performance monitoring that will interact with all the capex and opex programs; the intention is to identify and achieve cost efficiencies and improve effectiveness of works delivery;

D406.11 modest efficiency savings are predicted: preventive maintenance - there is an initial 1% benefit forecast for RY24, increasing to 5% per year for RY26; vegetation management - projected to benefit by 0.5% per year from RY22 to 2.5% for RY26 and subsequent years;

D406.12 Aurora cost-benefit analysis of the ICT programme shows a negative NPV in the first five years from RY21, but a compensating large positive NPV once the next five years are included; and

D406.13 current cost-benefit analysis assumes only minor efficiency improvements in preventive maintenance, in contrast to the Verifier industry experience where the development or enhancement of asset management systems coupled with improved asset condition data from an enhanced inspection program would offer greater benefits than 1–5% annually.

D407 The Verifier concluded that it fully verified the forecast for the proposed ICT capex and opex forecasts of $12.2 million and $17.0 million, respectively.

Our findings

D408 We have reviewed the CPP Application material and the Verifier's analysis of the ICT capex programme.

D409 Aurora has justified the prudent need for the forecast replacements based on several considerations such as a need to develop asset management systems, improve data systems and a move to a cloud-based solution rather than an asset centric one.

D410 Numerous external reviews carried out by Aurora have supported its ICT strategy and a robust internal top-down challenge process was evident to finalise forecasts including benchmarking against peers for key projects within the programme.

D411 While the Verifier considered the ICT programme expenditure was fully verified it expected that these ICT investments would typically result in greater levels of efficiency in other expenditure programmes.

D412 On the basis of these considerations we propose that the forecast expenditure in the ICT capex ($12.2 million) and ICT opex ($17.0 million) programme is likely to be prudent and efficient and meets the expenditure objective.[411]

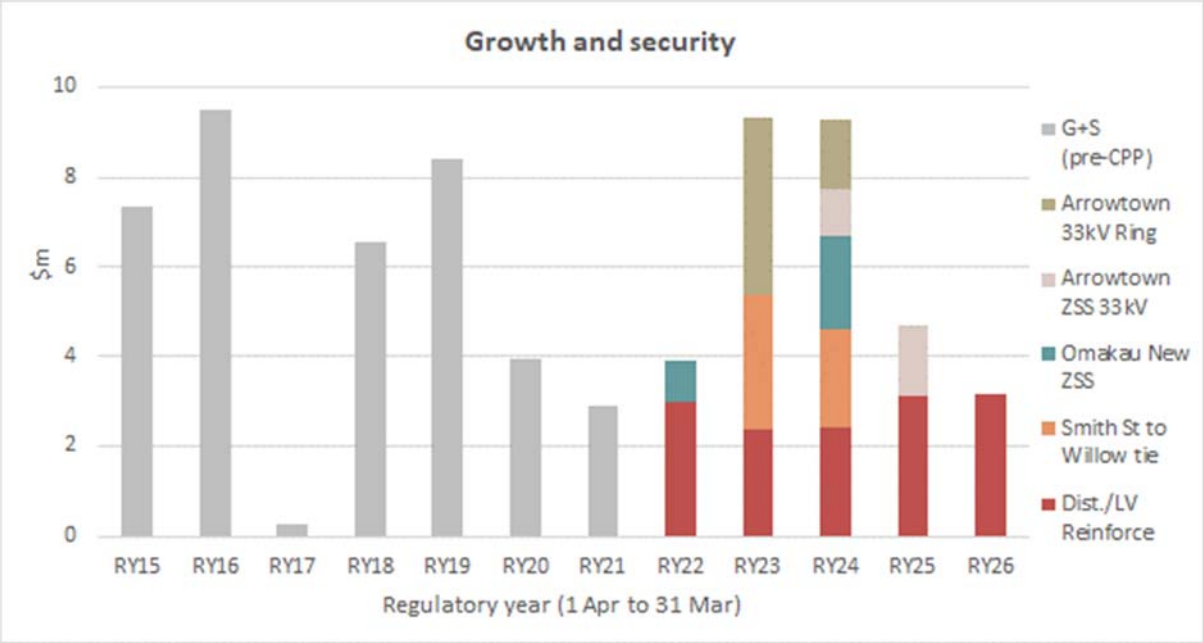
[411] The Verifier also noted that we may wish to consider more aggressive efficiency over the CPP period as the ICT investments start to take effect.

Growth and security capex

Background

D413 Aurora is proposing to invest $30.3 million over the CPP period (see Figure D13) in its Growth and Security capex programme to "ensure the capacity of our network is adequate to meet the peak demand of our customers, with appropriate supply security, now and into the future".[412]

Figure D13 Growth and Security capex between 2014-2015 and 2025-2026



D414 The Growth and Security capex programme comprises:

D414.1 $5.4 million for the Arrowtown 33 kV ring upgrade;

D414.2 $2.6 million for the Arrowtown zone substation 33 kV indoor switchboard upgrade;

D414.3 $3.0 million for a new zone substation at Omakau;

D414.4 $5.2 million for the Smith St to Willowbank intertie; and

D414.5 $14.0 million for distribution and LV network reinforcement.

[412] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), Section F.1 p. 130 para 477

D415 We have also discussed the $3 million Upper Clutha DER in this capex attachment. This is an opex project but is part of a suite of projects Aurora has proposed to defer capex investment so is logically discussed in the capex attachment.[413]

What the CPP Application says – Key drivers

D416 In its CPP proposal Aurora notes that:[414]

D416.1 demand growth is a key driver for growth and security investments;

D416.2 Dunedin has relatively low levels of demand growth while there have been higher levels in Central Otago and Queenstown;

D416.3 security of supply guidelines are used to design network reliability levels (e.g. N or N-1 supply security) but are used by Aurora as a guideline only; and

D416.4 project forecasting follows a formal needs assessment process that identifies long and short list options, applies economic analysis to short list options, identifies the preferred option, and then cost estimated.

What the CPP Application says – Growth and security projects

Arrowtown 33 kV ring upgrade [415]

D416.5 the Arrowtown ring is supplied from Transpower's Frankton grid exit point (GXP) and supplies four zone substations (Dalefield, Coronet Peak, Arrowtown and Remarkables); and

D416.6 the demand on the Arrowtown ring has exceeded its firm capacity and security level in the last six years; this project includes installing a new 33 kV underground cable circuit from Frankton GXP to increase the capacity of the ring.

Arrowtown zone substation 33 kV indoor switchboard [416]

D416.7 the Arrowtown ring is currently operated as an open ring with the open point located at the Arrowtown zone substation; the open point is a manually operated air-break switch;

D416.8 the ring is categorised as Z1 security level according to the security of supply guidelines, which means that consumers should have no interruption for a single cable, line, or transformer fault; and

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[413] DER – Distributed Energy Resources which includes electric vehicles, photo voltaic installations and battery storage systems.

[414] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), Section F.1 p. 132-136

[415] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), Section F.3 p. 136-139

[416] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), Section F.4 p. 139-141

D416.9 this project will replace the existing outdoor switchgear with indoor switchgear; included in the project is reconfiguration of the existing three transformers to increase the zone substation capacity.

New Omakau substation [417]

D416.10 the peak load supplied from the Omakau and Lauder Flat substations is forecast to exceed its firm capacity; the existing Omakau zone substation is located in a road reserve with no space for expansion; it is also very close to the river which is a flood risk;

D416.11 the substation has only one transformer with limited backfeed to/from adjacent substations; there is no space to park the mobile substation to offload the substation for maintenance and provide support for an unplanned outage; and

D416.12 this project will construct a new zone substation in a different location; the new zone substation will include a transformer from Cromwell zone substation, a mobile substation parking bay and a 33 kV outdoor bus with circuit breaker.

Smith Street to Willowbank zone substation 33 kV intertie [418]

D416.13 the sub-transmission circuits in Dunedin are all radially fed, with two cables in the same trench; this risk is pertinent during earthquakes as highlighted in the Christchurch earthquake;

D416.14 the network architecture is not resilient and there is no ability to transfer load to between Transpower's GXPs; the two 33 kV gas-filled sub-transmission cables to Willowbank are 57 years old and are relatively poor condition; and

D416.15 the proposed ring architecture project stage 1 is the Smith Street to Willowbank zone substation intertie; it will primarily delay the timing of other 33 kV cable replacements and address the common-mode failure issues associated with 33 kV cables in the same trench.

Distribution and low-voltage network reinforcement [419]

D416.16 distribution reinforcement: distribution growth and security planning aims to ensure that the capacity and voltage profile of 11 kV distribution feeders are adequate to meet the current and future demand;

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[417] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), Section F.5 p. 141-143

[418] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), Section F.7 p. 143-145

[419] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), Section F.8 p. 145-148

D416.17 distribution reinforcement adds capacity to existing parts of the feeder network, creates additional feeders or back-feed ties, upgrades from 6.6 kV to 11 kV, and installs or upgrades voltage regulators;

D416.18 low-voltage reinforcement: Largely planning the low-voltage distribution network is reactive due to lack of modelling in the low-voltage network;

D416.19 projects are either scheduled or non-scheduled; the scheduled projects are known after needs identification and options analysis process and make up approximately 50% of this expenditure programme; the non-scheduled projects are unknown in scope and timing so have been forecast based on historical trends;

D416.20 the distribution and low-voltage network reinforcement programme has not existed fully as a stand-alone programme, so best endeavours have underpinned the historical project estimates; and

D416.21 stated security of supply guidelines are followed to identify the need, and a long and short list options process is used to identify the best solutions for economic analysis; least cost solutions are determined using NPV analysis.

Arrowtown 33 kV ring upgrade - what the Verifier said

D417 The Verifier reviewed two growth and security capex projects namely the Riverbank upgrade and the Arrowtown 33 kV ring upgrade. Aurora, in its proposal, deferred the Riverbank upgrade to 2026-2027, beyond the five-year CPP period.

D418 The Verifier's review of the Arrowtown 33 kV ring upgrade concluded that:[420]

D418.1 Aurora has developed internal security of supply guidelines based on a review of other industry-standard guidelines from other Electricity lines companies; these are not binding but are used as a guide;

D418.2 demand forecast assumptions are the primary drivers for the need of the project; seasonal load effects are clear;

D418.3 the project need appears justified based on historical and forecast demand relative to firm capacity, subject to the forecast demand being realised;

D418.4 the Aurora focus on the economic net benefit rather than a deterministic security of supply standard is appropriate; and

[420] Farrier Swier "Verification Report – Aurora Energy CPP Application" (8 June 2020) Appendix C.16 p.246-208.

D418.5 the estimated net benefit depends on assumptions, including VoLL, forecast demand, and discount rate, and these do not appear inappropriate.

D419 The Verifier concluded that, for the demand assumptions made, this project was fully verified. However, given the project net benefit depends on forecast demand, which will be affected by the Covid-19 pandemic economic effects, this project could be treated as a contingent project. We agree with this view.

Strata review of growth and security projects

D420 We engaged Strata to review the growth and security project not reviewed by the Verifier namely:

D420.1 Arrowtown zone substation 33 kV indoor switchboard upgrade;

D420.2 the new zone substation at Omakau;

D420.3 the Smith St to Willowbank intertie; and

D420.4 Upper Clutha Distributed Energy Resources (DER).

D421 We have summarised Strata's analysis and used this advice, and the Verifier's conclusions, to set allowances for the growth and security capex portfolio.

D422 We asked Strata to review the general investigation approach taken by Aurora for these projects, and to test how Aurora's stated network security standards have been appropriately applied, the demand forecasts used, alternative considered, how cost-benefit analysis was framed, and VoLL estimates amongst other things. We asked Strata to provide and opinion on any adjustments we should consider.

D423 Strata concluded that:

D423.1 each growth project includes a brief comment on Aurora's view of the likely impact of Covid-19; in most cases, project deferrals are forecast using Aurora's best estimate of the impact; given the evolving nature of Covid-19, and the challenging timing with respect to the deadlines inherent in our CPP assessment process, it was considered that Aurora's assessment of the impacts are broad brush estimates at best;

D423.2 Aurora's security standard guidelines are like others encountered while undertaking assignments for regulators relating to New Zealand electricity distributors;

D423.3 Aurora's voluntary project deferrals due to Covid-19 affecting demand, pending more reliable planning data is reasonable;

D423.4 Aurora's preferred non-network DER opex solution for the Upper Clutha capacity constraint (Wanaka and the Lakes district) appears to afford advantages if it can be implemented cost-effectively and sustainably; and

D423.5 the VoLL assumptions and the cost-benefit analyses that underpin the growth and security projects seem reasonable.

Arrowtown zone substation 33 kV indoor switchboard upgrade

D424 In relation to the Arrowtown zone substation 33 kV indoor switchboard upgrade, Strata's key conclusions were that:

D424.1 consideration of alternative solution options was reasonable and cost-benefit analysis was applied to two short-listed options to the determine least cost solution and investment timing;

D424.2 the Arrowtown 33 kV switchboard project ties closely with the Arrowtown 33 kV ring upgrade project; should have been considered as two project stages to address interrelated issues with local growth and security; and

D424.3 regarding the effects of Covid-19; analysis of recent demand in the Queenstown region is inconclusive, with Aurora's July 2020 peak demand at Frankton GXP being very slightly lower (0.3 MW or 1%) than at the same time last year.

D425 It is not clear what the medium and long-term effects of Covid-19 will be on peak demand trends in the region. Strata noted a slight peak demand reduction at Frankton in its analysis, but this was only a single data point and was inconclusive.

D426 Based on the Strata analysis, we agree that the Arrowtown 33 kV switchboard project should logically be packaged with the Arrowtown 33 kV ring upgrade project, and agree with the Verifier that the Arrowtown 33 kV ring upgrade project could be contingent until demand becomes more certain.

D427 When Covid-19 demand effects become clearer, and if demand increases, Aurora can utilise our proposed reconsideration mechanism (see Attachment J) and seek additional funding for these projects.

New zone substation at Omakau

D428 In relation to the new zone substation at Omakau, which includes an upgraded transformer, Strata's key conclusions were that:

D428.1 the 2020-2021 summer peak demand period (which is driven by irrigation pumping) is driving investment timing and Aurora has already factored in Covid-19 effects;

D428.2 the Omakau transformer had previously reached its full summer capacity; Aurora has installed fans to keep the transformer cool while operating at capacity and has offloaded some demand to Lauder Flat; there is limited additional load transfer capability available;

D428.3 the existing Omakau transformer is 52 years old and due for replacement in RY29 according to Aurora's age-based replacement criterion; while Aurora make no comment about the transformer condition a lot of other equipment at Omakau is due for replacement;

D428.4 Aurora had compiled and considered an extensive list of alternative options and applied cost-benefit analysis to four short-list options; and

D428.5 unless a significant demand reduction is forecast for the coming summer, the project should proceed to the timeframe as proposed.

D429 Based on Strata's analysis, and our own review of CPP proposal material, we propose that, unless significant demand reduction is possible at the site, the Omakau new substation project expenditure meets the expenditure objective.

Smith St to Willowbank intertie project

D430 In relation to the Smith St to Willowbank intertie, Strata's key conclusions were that:

D430.1 the Smith St to Willowbank intertie project is the first step in a $35 million + broader programme of work involving the Dunedin central business district (CBD) 33 kV sub-transmission network; Aurora has to replace aged and/or poor condition oil, gas and PILC 33 kV cables in the Dunedin CBD area over the next 10+ years;

D430.2 the proposed meshed architecture does not require like-for-like replacement of all existing radial cables; for example when the programme is completed both North City and South City zone substations will not be directly connected to their respective GXPs, rather they will be connected to the adjacent zone substations;

D430.3 Aurora has already started to implement its 33 kV cable replacement programme between Transpower's Halfway Bush GXP to Smith St in RY20 and RY21;

D430.4 once Aurora completes all the renewal/upgrade stages in the 33 kV CBD cable network and connects the two, short, normally-open GXP interties between Smith St to South City and North City to Ward St, the CBD will have N–2 supply security;

D430.5 there was a limited consideration of alternative options and the cost business analysis (**CBA**) analysis of the project looked at costs only;

D430.6 changing from a radial to a meshed architecture is possibly more beneficial than straight like-for-like replacement; in a CBD area, a meshed sub-transmission cable architecture can provide improved security, operational flexibility, and capacity sharing benefits between zone substations; and

D430.7 at a high level the approach Aurora has taken appears sound, but Aurora should have provided a more coordinated justification for the cable replacement programme such as comprehensive CBA with full probabilistic energy at risk planning to justify the change in architecture.

D431 The proposed $5.2 million Smith St to Willowbank intertie project is likely to be prudent if the proposed 33 kV meshed cable architecture is the best long-term economic strategy for the CBD.

D432 Aurora intends to commit to this strategy without presenting any economic analysis that demonstrates that it is economic to do so, or consumer support for the higher security level than its stated security standards. On this basis we propose that the $5.2 million Smith St to Willowbank intertie project expenditure does not meet the expenditure objective at this time.

D433 We encourage Aurora to carry out a full strategic plan for the proposed meshed cable architecture for the Dunedin CBD and carry out economic analysis demonstrating that it provides a greater benefit than the present arrangement, and encourage consumer engagement in this process.

D434 Aurora will be able to utilise our reconsideration mechanism (see Attachment J) to seek approval for this project when it has finalised its strategic CBD cable plan.

Clutha DER project

D435 The Clutha DER project is part of a suite of projects Aurora has proposed to provide firm (N-1) capacity for the two Cromwell – Riverbank 66 kV circuits to meet forecast demand growth. This solution involves Aurora making payments for use of third party owned small scale distributed generation and battery systems to defer investment in its network.

D436 As part of this integrated plan Aurora plans to install a total of 10 MVAr of static capacitors at Lindis Crossing, Cardrona and Wanaka zone substations. These projects will be completed in 2020 to improve voltages in the region, reduce losses and provide increased circuit capacity under N-1 circuit outage conditions. The Clutha DER project is the second stage of this suite of projects to meet increasing demand in the region.

D437 One submitter suggested that Aurora should consider the use of emerging renewable technologies and distributed generation.[421] Aurora has included the effects of solar panel and electric vehicle uptake in its demand forecasting, and this DER solution seeks distributed energy resources as third-party providers.

D438 Strata, in its review of the Clutha DER solution, made the following observations:

D438.1 Aurora has applied a two-year project deferral due to Covid-19 considerations which is a reasonable approach;

D438.2 Aurora considered a range of network and non-network options in its long list of alternatives, and short-listed seven options for a focussed cost-benefit analysis to select its preferred solution;

D438.3 Aurora applied its stated security standards in its analysis; and

D438.4 this project will provide improved voltage support in the region, reduce losses and increase circuit transfer capacity under Cromwell – Riverbank – Wanaka circuit outage conditions; and extends the capacity of the network and appears to be the most economical solution if third parties can be found to provide DER solutions.

D439 Strata concluded that the DER solution appears to afford advantages if it can be implemented cost-effectively and sustainably. Strata note that Aurora had already completed an RFP process, and progressed discussions with potential DER aggregators to the point where it was considered a viable, cost-effective option.

D440 We consider that this is an innovative solution proposed by Aurora to defer major capital investment in its sub-transmission network and should be supported. In conjunction with capacitors to improve network voltages and improve power transfer capability the DER alternative should provide benefits to consumers.

Our findings

D441 We have reviewed the CPP proposal Growth and Security projects and the Verifier review of the Arrowtown 33 kV ring upgrade project. We also engaged Strata to review the remainder of the major capex projects in the Aurora proposal, namely the Arrowtown zone substation 33 kV indoor switchboard upgrade, the new zone substation at Omakau, the Smith St to Willowbank intertie, and the Clutha DER solution.

[421] https://comcom.govt.nz/__data/assets/excel_doc/0016/224413/1-50-Submissions-on-Aurora-Energys-CPP-Issues-paper-27-August-2020.xlsx

D442 We agree that the new zone substation at Omakau and Clutha DER projects expenditure meets the expenditure objective. Aurora has demonstrated the need and the benefits of these projects.

D443 We believe that the Arrowtown substation upgrade projects should be considered together and are too dependent on demand assumptions that are presently uncertain due to medium-term Covid-19 effects. We consider that these projects do not presently meet the expenditure objective.

D444 Aurora in its Issues paper package submission stated that, while it supported our proposed IM variation which will deal with demand uncertainty, it notes that demand in the Queenstown Lakes District during the recent school holidays was higher than last year, while one submitter stated that delaying investment due to Covid-19 concerns was unreasonable.[422,423]

D445 We consider that peak demand, and demand growth in general, is too uncertain in the region, and that our reconsideration mechanism (see Attachment J) will enable Aurora to deal with this uncertainty in a timely manner.

D446 We also consider that the Smith St to Willowbank intertie project does not presently meet the expenditure objective. Aurora needs to demonstrate that the proposed meshed CBD cable architecture is economic and provides a greater benefit than the present arrangement. If not, then Aurora should consult with its consumers about whether they are willing to pay for a higher level of supply security in Dunedin.

D447 We did not fully review the $14.0 million distribution and low-voltage network reinforcement projects in detail from a bottom-up perspective, apart from the investment strategy for the Clyde/Earnscleugh zone substation site discussed earlier in this attachment.

D448 We tested the process and planning approach Aurora uses to forecast need, whether it investigates options to meet the need, and if it uses economic analysis to find the least cost solution. We are satisfied that Aurora takes a prudent approach to forecasting the distribution and low-voltage reinforcement capex.

D449 In summary we propose that:

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[422] https://comcom.govt.nz/__data/assets/pdf_file/0027/224487/Aurora-Energy-Submission-on-Aurora-Energys-CPP-Issues-paper-20-August-2020.pdf

[423] https://comcom.govt.nz/__data/assets/pdf_file/0020/224507/Mail-5-Submission-on-Aurora-Energys-CPP-Issues-paper-20-August-2020.pdf

D449.1 $17.0 million of proposed capex in the growth and security programme is prudent and efficient and meets the expenditure objective subject to a 5% efficiency adjustment; and

D449.2 $3.0 million of proposed opex for the Clutha DER solution is prudent and efficient and meets the expenditure objective.

Attachment E Proposed allowance for opex

Purpose of this attachment

E1 This attachment outlines our draft decisions on the opex that Aurora will be able to recover from its customers in the CPP period. All expenditure references in this attachment are in real $2020 terms unless stated otherwise.

Summary of our draft decision for opex

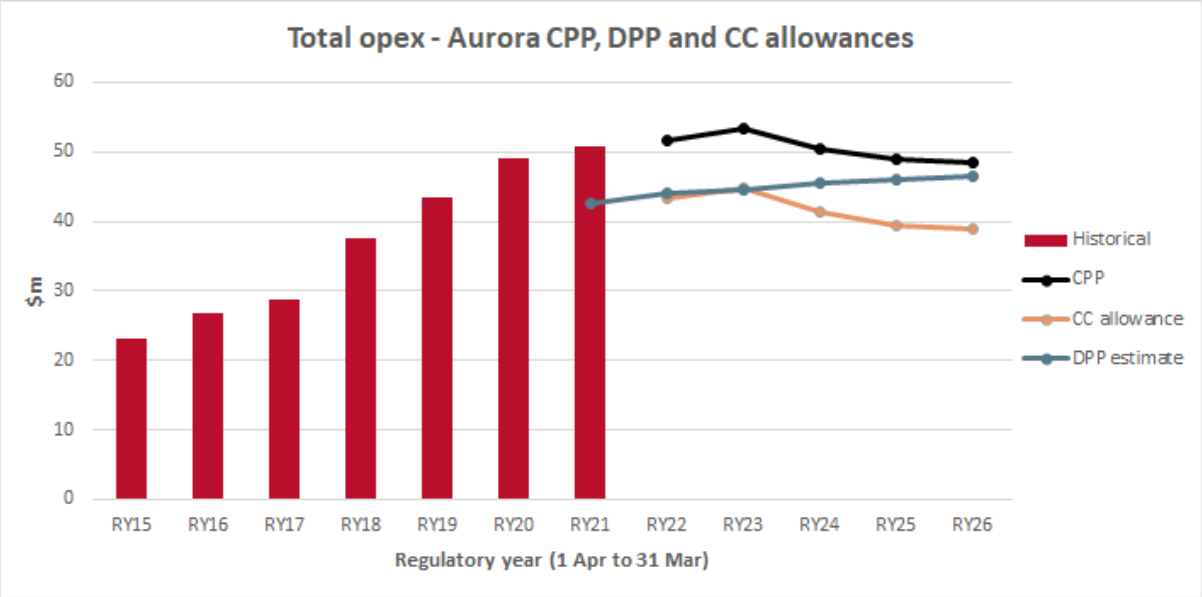
E2 Aurora has sought approval for $155.6 million of opex for a three-year CPP between RY22 and RY24.[424] Aurora provided information that enabled the Verifier to carry out its verification for both a three-year and five-year period and allowed us to review that information and decide on how long the CPP period should be. Given our draft decision to determine a five-year CPP, we have reviewed Aurora's opex proposal for the five-year CPP period of $252.9 million.

E3 We propose to set a five-year CPP following our review of the Verifier's report and our view that expenditure forecasting risk in RY25 and RY26 had been over-stated by Aurora (refer to Attachment B for further details).

E4 Our draft decision is that Aurora be allowed $207.7 million of its proposed $252.9 million in opex over the five-year CPP period, which is a reduction of 17.9% on what it proposed (see Figure E1).

[424] RY refers to Regulatory Year - for example, RY22 refers the 1 April to 31 March period ending on 31 March 2022.

Figure E1 Opex allowance comparisons, Aurora CPP, DPP and historical opex[425]



E5 Figure E.1 above illustrates various expenditure profiles, namely the historical opex expenditure (RY21 expenditure is Aurora's estimate), CPP proposal opex (Aurora CPP), the DPP allowance estimates, and our draft decision CPP allowance (CC allowance).

E6 The DPP allowances are estimates only but as a general comparison our draft decision for the RY22-RY26 CPP period provides $19.0 million less opex than our estimate of what DPP3 (and an estimate of what DPP4 would have allowed in RY26).

Summary of our opex assessment

E7 The Verifier reviewed seven opex programmes of work from a total of 10.[426]

E8 The Verifier applied materiality criteria to choose its programme selections which resulted in it reviewing 92% of the total opex programme.

[425] The main drivers behind the reduction in Aurora's and the Commission's opex allowances after 2023, include: a reduction in vegetation cut volumes; a reduction in SONS & people expenditure from completion of the 2nd CPP application and a reduction in network evolution spend; and a reduction in corrective maintenance expenditure due to forecast improvements in network condition.

[426] Upper Clutha Distributed Energy Resource (DER) solution, Administration & Governance and Premises, Plant & Insurance were the 3 opex programmes not reviewed

E9 Following the verification process the Verifier concluded that $9.2million of Aurora's total opex programme of $229.2million expenditure was unverified. While the Verifier concluded that it had verified 88% of Aurora's total opex programme of $248.9 million, [427] this did not include the $3.0 million Clutha DER project. This project increased the opex proposal amount to $252.9 million:[428]

E9.1 considering how Aurora is making decisions about appropriate levels of full-time equivalent (FTE) staff for a business of its size;

E9.2 whether RY18 vegetation expenditure - which was used to determine the unit rate - is efficient and whether it is appropriate to use the information disclosure data to benchmark that expenditure against other electricity lines companies;

E9.3 whether it is appropriate for the remediation costs of the consumer pole population to be included within the regulated cost base;

E9.4 whether the proposed increase in corrective maintenance expenditure to address defects is appropriate;

E9.5 work with Aurora to understand the efficiency of it RY19 base year expenditure;

E9.6 whether it is appropriate to apply a network growth factor to corrective and reactive maintenance and Systems Operation and Network Support (SONS) and people expenditure;

E9.7 whether additional year on year productivity improvements should be factored into the opex categories;

E9.8 assess the consistency between capitalised and expensed SONS and people expenditure; and

E9.9 whether Aurora's proposed step change for insurance may be too high.

E10 We considered that these were fundamental issues raised by the Verifier despite it concluding that it verified 88% of the opex proposal.

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[427] The Verifier did not verify all of Aurora's proposed expenditure for a range of reasons. These included identifying that there was a lack of supporting information provided to allow them to verify, and not agreeing that the proposed expenditure meets the expenditure objective as defined in clause 1.1.4(2) of the Electricity Distribution Services Input Methodologies

[428] Subsequent to the CPP proposal being lodged with us, at the Verifier workshop it noted that during the verification process, a large proportion of project and programme documentation, expenditure justifications and modelling had to be produced on request.

E11 As part of our investigation we sought additional information from Aurora using a formal Request for Information (RFI) process and Aurora provided responses to the information we sought. Throughout this attachment we refer to these RFI's and discuss how we have used the information to inform our view of the proposal.

E12 We engaged Strata, as independent expert consultants, to review seven of the nine issues identified above by the Verifier,[429] and after we reviewed the results of Strata's analysis, we decided the following opex reductions to the opex programme proposed by Aurora:

E12.1 SONS and people expenditures reduced due to these not reflecting the efficient costs that would be required by a prudent electricity lines company;

E12.2 vegetation management unit rate reduced due to unit rate not reflecting market rates;

E12.3 network growth trend multiplier removed from SONS, people, corrective maintenance and reduced for reactive maintenance;

E12.4 reduced the proposed step change in corrective maintenance opex due to additional defects;

E12.5 SONS expenditure reduced due to smaller increase allowed for insurance premia than proposed by Aurora;

E12.6 people costs reduced due to smaller increase allowed to staff training costs; and

E12.7 reduced Administration and Governance expenditure due to efficiency benefits from bringing some in-house legal work and removing one-off customer communication costs associated with Aurora's CPP application.

E13 We have included submitter feedback where appropriate throughout the attachment from the Issues Paper package submissions, and feedback from the public stakeholder engagement sessions in Otago in August and subsequent submissions from stakeholders.

E14 Table E1 summarises the opex proposed amounts, unverified amounts and the reductions following our analysis.

[429] The Commission investigated 2 of the 9 issues identified by the Verifier (see para E8). These were: whether it is appropriate for the remediation costs of the consumer pole population to be included within the regulated cost base; and an assessment of the consistency between capitalised and expensed SONS and people expenditure

E15 Table E2 summarises, at an opex programme level, the in-depth analysis from opex project and programme analysis section of this attachment.

Table E1 Summary of opex programme approval amounts (note the five-year step change refers to the previous five-year period)

OPEX	RY22-RY26 $m	% of total opex	Verified $m	Unverified $m	CC/Strata review reduction $m	Current view $m
NETWORK OPEX						
Preventive Maintenance	$30.5	12%	$30.5	$0.0	$0.0	$30.5
Corrective Maintenance	$17.1	7%	$15.7	$1.3	$0.7	$16.4
Reactive Maintenance	$22.8	9%	$21.6	$1.1	$0.3	$22.5
Vegetation	$21.2	8%	$20.3	$0.8	$5.1	$16.1
NON-NETWORK OPEX						
SONS	$80.4	32%	$77.1	$3.3	$25.0	$55.4
People Costs	$40.3	16%	$37.7	$2.6	$13.2	$27.1
IT Opex	$17.0	7%	$17.0	$0.0	$0.0	$17.0
Premises and Plant	$5.1	2%	-	-	$0.0	$5.1
Administration and Governance	$15.6	6%	-	-	$1.1	$14.5
Upper Clutha DER Solution	$3.0	1%	-	-	$0.0	$3.0
TOTAL OPEX	**$252.9**	**100%**	**$220.0**	**$9.2**	**$45.3**	**$207.7**

Table E2 Summary of Aurora CPP opex programme analysis

Programme reference	Proposed expenditure ($m)	Allowance amounts ($m)	Key Verifier views and our analysis that supports draft decisions
Vegetation management	**$21.2m**	**$16.1m**	• Aurora considers $21.2 million of expenditure is necessary to address a vegetation management backlog and then move from a reactive to a proactive strategy; followed by a return to a cyclical strategy in RY24. • Aurora vegetation opex has increased in recent years followed by a reduction in vegetation related SAIDI and SAIFI. • Vegetation activities performed fully by related party Delta until RY22. Aurora propose to tender work in RY23. • Verifier concluded that unit rate – of $98,907 per km – based on RY18 expenditure appears inefficient because: - Delta was the sole provider of vegetation services to Aurora in RY18 and the rates were not market tested; - Delta a related party, so Verifier could not conclude Delta's rates reflected arms' length negotiations; and - Aurora's vegetation opex unit rates were noticeably higher than other electricity lines companies. • Verifier recommended we test the RY18 unit rate assumption and whether productivity improvements appropriate. • Submissions supported our focus noting - importance of vegetation control; slow response of Aurora when notified of vegetation issues; whether Aurora are prioritising critical areas; and economics of undergrounding. We have commented on these submissions. • We engaged Strata to test vegetation opex and sought additional information with RFI's. Strata concluded that: - the lack of market testing means it is unable to test Aurora's unit rate assumptions and Aurora's first cut vs cyclical cut costs are not reflected in its modelling which assumes single unit rate over the CPP period; - It is difficult to directly benchmark unit rates because electricity lines companies are not required to report length of vegetation cut each year or what strategy Aurora is on; - Strata tested Aurora unit rate from various perspectives against various cohorts such as ICP/km density, similar OH line length and urban vs rural line length ratios; - Strata also tested Aurora's vegetation management resourcing cost against Mainpower's (scaled up for comparative purposes) using detailed cost data from each electricity lines company; and - Strata could not replicate the results in the KPMG report which Aurora used to test its unit rate assumptions; Strata concluded proposed unit rate of $98,907 per km did not meet expenditure objective, and should be reduced to $75,000 per km;

Programme reference	Proposed expenditure ($m)	Allowance amounts ($m)	Key Verifier views and our analysis that supports draft decisions
			• We note that the Verifier, despite concluding that Aurora's unit rate was high, did not propose it was reduced. We consider Strata conclusions are consistent with the Verifier's view. • We agree that Aurora's unit rate is unlikely to be efficient because no market testing supports proposal and Aurora has proposed single unit rate for mix of strategies. We conclude that unit rate reduction to $75,000 per km more likely reflects efficient unit rate and propose that $16.1 million of vegetation management opex meets the expenditure objective.
Preventive maintenance	**$30.5m**	**$30.5m**	• Aurora considers expenditure is necessary to address defect backlogs (corrective); address neglected maintenance, improve inspections and gather asset data (preventive); and help meet proposed service standards (reactive). • Verifier concluded that the benchmarking is inconclusive about base year efficiency used in forecasts, Aurora's proposed efficiency improvements were modest, a network growth scaling may not be appropriate in this case, and new contractor arrangements should provide realisable efficiencies sooner than Aurora assumed. • The Verifier also identified other issues for us to investigate further such as appropriateness of consumer poles expenditure, whether RY19 base year is efficient and to test RY20 actuals when these were available. • We received submissions about Aurora's maintenance activities to the effect that these had been neglected and appeared to have been inefficiently carried out. • We tested whether Aurora should accept costs associated with inspecting and maintaining consumer owned poles – Aurora forecast inspecting up to 4,000 poles by RY27 prior to handing over ownership. Advice suggests that it is appropriate for consumer poles remediation costs be included within the regulated cost base. • We engaged Strata to test Verifier-identified issues and sought additional information with RFI's. Strata concluded that: - it is not appropriate to apply network growth factor to corrective maintenance, but it is for reactive maintenance at a reduced level because new assets are covered by warranty and unlikely to require corrective maintenance over the CPP period, and reactive maintenance is usually driven by external factors; - Aurora's assumption that greater focus on preventive maintenance will lead to more defects and step change in corrective maintenance opex, not fully supported; - using RY19 as a base year for the maintenance opex base step and trend approach appears to be efficient because this is consistent with opex levels over time, and Aurora benchmarks comparably with electricity lines company peers; and - RY20 actual values slightly higher than CPP proposal forecast - RY19 network maintenance opex is more likely to be efficient than inefficient. • We tested issues raised by Verifier and after challenging the analysis, agree with Strata's conclusion that RY19
Corrective maintenance	**$17.1m**	**$16.4m**	
Reactive maintenance	**$22.8m**	**$22.5m**	

Programme reference	Proposed expenditure ($m)	Allowance amounts ($m)	Key Verifier views and our analysis that supports draft decisions
			maintenance opex costs for base step and trend are likely to be efficient, and that applying a network growth factor is appropriate for reactive maintenance at a reduced level. • Our draft decision is to approve $22.5 million of reactive maintenance, $16.4million of corrective maintenance, and $30.5 million of preventive maintenance is likely to be prudent and efficient in meeting the expenditure objective.
Systems Operations and Network Support (SONS) **People costs**	**$80.4m** **$40.3m**	**$55.4m** **$27.1m**	• Aurora consider SONS expenditure necessary to improve its asset management capability and enable a co-ordinated approach to management of network operations and performance, customer engagement and works delivery. • The Verifier identified some key areas for investigation in its review namely: - consider what level of staffing is efficient for a network like Aurora; - whether base, step and trend approach to forecast SONS/people costs is appropriate given its a new team; and - whether it is appropriate to rely on board/management oversight to ensure SONS/people step up prudent and efficient; and if SONS/people costs should grow in line with network scale. • Verifier benchmarked Aurora's SONs per totex ratio ICP/km density using RY19 data; suggested Aurora benchmarked reasonably against Australian electricity lines companies but not NZ peers. • We were not convinced that totex ratio benchmarking is reasonable for an electricity lines company like Aurora which is in transition; when annual capex can fluctuate widely and whether a single year comparator (RY19) appropriate. • We engaged Strata to review a range of SONS and people cost issues and after extensive analysis concluded that: - primary reason for SONS/people costs uplift is resourcing (158 FTE's); a 52% increase from Delta arrangement; top-down cohort benchmarking suggested Aurora SONS an outlier when compared with other EDBs; process for making staffing decisions - absence of independent expertise and business cases to assist decision making; - bottom-up analysis suggested more reasonable staffing range for proposed activities may be 127.5 FTE's with an upper bound of 136 FTE's. Salary levels compare reasonably; - role analysis suggests some new activities may have been already carried out by Delta before transfer; some are transitional to develop policies and standards; some could be rationalised due to size of Aurora. Staff levels should reduce over the period, but this isn't reflected in Aurora's forecasts; no reduction out to RY30; - top-down benchmarking with NZ electricity lines company peer group suggests SONS and people costs may be 30% too high at least, even after allowing for a CPP expenditure uplift; - SONS comparison with Powerco (similar ICP/km density) suggest Aurora a significant outlier. Aurora proposing to spend more than Powerco on SONS even though Powerco network is 4 times larger. Powerco is presently on a CPP; and

Programme reference	Proposed expenditure ($m)	Allowance amounts ($m)	Key Verifier views and our analysis that supports draft decisions
			- from both top-down and bottom-up perspective Aurora appears to be an outlier and reductions were recommended. We extensively reviewed the Strata analysis but largely accept it. • We consider that Aurora's proposed SONS and People cost forecasts are not efficient and our draft decision is to approve a reduced amount of $55.4 million in SONS and $27.1 million in the people cost categories; these better reflect a prudent and efficient level of expenditure that meets the expenditure objective.
Administration & Governance, Plant & Premises	**$20.7m**	**$19.6m**	• Aurora proposed expenditure on: - Plant and Premises necessary for (increasing) accommodation needs based on forecast staff levels. - Administration and Governance necessary for costs relating to its board of directors, audit and assurance programmes, legal fees and consumables. • The Verifier did not review the expenditure forecasts proposed by Aurora for this area of expenditure. • We engaged Strata to undertake a high-level test of the reasonableness of this unreviewed opex and sought additional information through RFI's. Strata concluded that Aurora's proposed: - Plant and Premises expenditure is justified, and Aurora's proposed base year expenditure should be approved; and - Administration and Governance expenditure is broadly consistent with its actual RY19 costs but outsourcing repetitive and non-specialised legal work may be inefficient; such that the base year expenditure can be reduced by approximately 7%. • Our draft decision is to approve $14.5 million of Administration and Governance & $5.1 million of Plant and Premises expenditure.

Opex review of Aurora's CPP proposal

CPP evaluation criteria

E16 The criteria that we must use to evaluate a CPP are set out in electricity lines company input methodologies.[430] These criteria are intended to ensure that our determination of a CPP promotes the long-term benefit of consumers.

Evaluation criteria for customised price-quality path proposals

The Commission will use the following evaluation criteria to assess each CPP proposal:

a) whether the proposal is consistent with the input methodologies;

b) the extent to which the proposal promotes the purpose of Part 4 of the Act;

c) whether data, analysis, and assumptions underpinning the proposal are fit for the purpose of determining a CPP;

d) whether the proposed capital and operating expenditure meet the expenditure objective;

e) the extent to which any proposed changes to quality standards reflect what the applicant can realistically achieve taking into account statistical analysis of past SAIDI and SAIFI performance; and/or (ii) the level of investment provided for in proposed; and

f) the extent to which the CPP applicant has consulted with consumers on its CPP proposal; and the proposal is supported by consumers, where relevant.

E17 Of the evaluation criteria, it is criteria d) that is most relevant to assessing opex.

E18 Whether c) data and assumptions are fit for purpose, and f) consumer consultation will also sometimes be relevant, is noted in this attachment where this is the case.

Whether the proposed expenditure reflects the expenditure objective

E19 The expenditure objective requires us to assess Aurora's proposed operating expenditure on the basis that it reflects the efficient costs that a prudent supplier subject to price-quality regulation would require to:

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[430] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020, clause 5.2 available at https://comcom.govt.nz/__data/assets/pdf_file/0017/60542/Electricity-distribution-services-input-methodologies-determination-2012-consolidated-20-May-2020-20-May-2020.pdf.

E19.1 meet or manage the expected demand for electricity distribution services, at appropriate service standards, during the customised price-quality path regulatory period and over the longer term; and

E19.2 comply with applicable regulatory obligations associated with those services.[431]

E20 The assessment of forecast expenditure is not a mechanistic process it necessarily involves the exercise of judgement supported by expert advice. We consider that a 'prudent supplier' is a supplier whose planning and performance standards reflect good electricity industry practice (GEIP), and we note that the verifier took this approach.[432]

E21 We assess the prudency and efficiency of expenditure during the regulatory period and over the longer term. As such, while our assessment of forecast expenditure focusses on the CPP regulatory period it does also consider longer term impacts.

The Verifier selection of identified programmes for review

E22 The IMs require that for purposes of the capital and operating expenditure reviews set out in Schedule G5(1)(d) and G6(1)(g), the Verifier must select no more than 20 projects and programmes. These are called the identified programmes.[433]

E23 In selecting the identified programmes, the Verifier must consider:[434]

E23.1 the long-term interests of consumers;

E23.2 our ability to effectively review the capex and opex forecasts against the expenditure objective;

E23.3 the rationale for the CPP;

E23.4 whether the identified programmes selected are enough to provide an opinion on whether the proposal is prepared in accordance with the applicants planning standards and policies, at an aggregate level, and for each of the capex and opex categories;

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[431] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020, clause 1.1.4, available at: https://comcom.govt.nz/__data/assets/pdf_file/0017/60542/Electricity-distribution-services-input-methodologies-determination-2012-consolidated-20-May-2020-20-May-2020.pdf.

[432] Farrier Swier Consulting Pty Ltd and GHD Pty Ltd "Verification report - Aurora Energy CPP application" (8 June 2020), p. 25-26

[433] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020 Schedule G4(1)

[434] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020 Schedule G4(2) and G4(3)

E23.5 the materiality of the programmes and projects in the CPP proposal; and

E23.6 address the key risks the applicant is exposed to, a key driver of the need to submit the proposal, or any obligation that has a significant impact on the applicant's business.

E24 The selection methodology the Verifier used to choose the Identified programmes is set out in Appendix C of the Verification report. The Verifier qualified its Identified Programme selections against the criteria set out in Schedule G4(2) and G4(3) stating that:

E24.1 it was restricted to a maximum of 20 projects and programmes out of a total of 48 so its review of the full capex portfolio especially was limited;

E24.2 safety was a key driver for much of the proposal, so it was important to focus on those fleets that were directly relevant to safety such as the poles, crossarms, conductors, protection, LV enclosures and zone substation equipment;

E24.3 the major growth projects only contribute 4% to the combined total capex and opex expenditure over the CPP period so the two largest growth capex projects were selected;

E24.4 Aurora's move from a reactive to preventive maintenance approach indicated that these programmes should be reviewed along with vegetation management opex;

E24.5 Aurora was proposing a significant uplift in systems and staff to improve its asset management, so programmes such as ICT capex, SONS opex and people costs were reviewed; and

E24.6 The IMs require that for purposes of the capital and operating expenditure reviews set out in Schedule G5(1)(d) and G6(1)(g), the Verifier must select no more than 20 projects and programmes. These are called the identified programmes.

E25 In selecting the identified programmes, the Verifier must consider:

E25.1 the long-term interests of consumers;

E25.2 our ability to effectively review the capex and opex forecasts against the expenditure objective;

E25.3 the rationale for the CPP;

E25.4 whether the identified programmes selected are enough to provide an opinion on whether the proposal is prepared in accordance with the applicants planning standards and policies, at an aggregate level, and for each of the capex and opex categories;

E25.5 the materiality of the programmes and projects in the CPP proposal; and

E25.6 address the key risks the applicant is exposed to, a key driver of the need to submit the proposal, or any obligation that has a significant impact on the applicant's business.

E26 The Verifier reviewed the following opex projects and programmes:

E26.1 Vegetation management ($21.2 million)

E26.2 Preventive maintenance ($30.5 milion)

E26.3 Corrective maintenance ($17.1 million)

E26.4 Reactive maintenance ($22.8 million)

E26.5 SONS ($80.4 million)

E26.6 People costs ($40.3 million)

E26.7 IT opex ($17.0 million)[435]

E27 The Verifier did not review $23.7 million (8%) of the total opex programme. The unreviewed opex included expenditure on Plant and Premises, Administration and Governance and Upper Clutha DER solution.

We tested the Verifier report against the requirements of Schedule G – Terms of Reference for verifiers when we reviewed the proposal opex programme

E28 We have relied on many aspects of the Verifier's findings in reaching our conclusions about whether expenditure in the opex programme has met the expenditure objective.

E29 The Verifier did not fully report, on a clause by clause basis, whether Aurora's proposal was consistent with Schedule G of the electricity lines company IMs.[436] While the Verifier's report contained a comprehensive assessment in each of the 20 projects and programmes (Identified Programmes), the Verifier's views of compliance with Schedule G were generally consolidated within its written review material.

[435] The IT opex was reviewed in Attachment C as part of the capex analysis

[436] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020, Schedule G – Terms of Reference for Verifier's, available at: https://comcom.govt.nz/__data/assets/pdf_file/0017/60542/Electricity-distribution-services-input-methodologies-determination-2012-consolidated-20-May-2020-20-May-2020.pdf.

E30 We carried out our own review of the Verifier's report to test the verification findings against the clause by clause requirements of Schedule G, where this was relevant to the Identified Programmes.

E31 We tested the Verification report in a top-down (Limb 1) and a bottom-up (Limb 2) manner for both the capex and opex forecasts. The Limb 1 top-down review focussed on those aspects of the Schedule G requirements that affect all aspects of the opex forecast in a CPP proposal, such as the policies and planning standards used by the electricity lines company, key assumptions used and how opex forecasts were developed, cost estimation methods including procurement efficiency and deliverability.

E32 The Limb 2 bottom-up review focussed on, at an individual project and programme level for each of the verified Identified Programmes. This includes analysis as to whether the top-down frameworks had been applied in practice and includes additional project and programme specific requirements such as opex project prioritisation, unit rate sources used, links with other projects and programmes including capex, and individual opex model inputs.

E33 In our Limb 1 top-down review of the Verifier's report we tested to what extent the Verifier had:

E33.1 provided an opinion on whether the policies, planning standards relied upon by Aurora were of a nature and quality required for the opex forecast to meet the expenditure objective; [437]

E33.2 provided an opinion on whether the opex forecasts were prepared in accordance with the policies and planning standards at an aggregate level and for each opex category; [438]

E33.3 provided an opinion on the reasonableness of the key assumptions relied on by the CPP applicant, how these were developed, applied and their impact on the actual and forecast opex; [439]

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[437] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020, Schedule G6(1)(a)(i) and (ii), available at: https://comcom.govt.nz/__data/assets/pdf_file/0017/60542/Electricity-distribution-services-input-methodologies-determination-2012-consolidated-20-May-2020-20-May-2020.pdf.

[438] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020, Schedule G6(1)(b), available at: https://comcom.govt.nz/__data/assets/pdf_file/0017/60542/Electricity-distribution-services-input-methodologies-determination-2012-consolidated-20-May-2020-20-May-2020.pdf.

[439] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020, Schedule G6(1)(a)(iii) and G6(1)(c), available at: https://comcom.govt.nz/__data/assets/pdf_file/0017/60542/Electricity-distribution-services-input-methodologies-determination-2012-consolidated-20-May-2020-20-May-2020.pdf.

E33.4 provided an opinion on any other opex drivers not covered by the key assumptions that have led to an increase in the opex forecast including whether the quantum of such an increase is required to meet the expenditure objective. [440]

E33.5 provided an opinion on the reasonableness of the methodology used in forecasting opex (such as cost benchmarking or internal historic cost trending), including the relationship between the opex forecast and capex forecast; [441]

E33.6 provided an opinion on the reasonableness of any opex reduction initiatives undertaken or planned during the current period or the next period; [442]

E33.7 reported conclusions on whether the project and programme capital costing methodology and formulation, including unit rate sources, the method used to test the efficiency of unit rates and the level of contingencies included for projects; [443]

E33.8 reported conclusions on cost control and delivery performance for actual opex, and deliverability of work covered by the opex categories in the next period; [444]

E33.9 reported conclusions on the efficiency of the proposed approach to procurement; [445]

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[440] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020, s G6(1)(d), available at: https://comcom.govt.nz/__data/assets/pdf_file/0017/60542/Electricity-distribution-services-input-methodologies-determination-2012-consolidated-20-May-2020-20-May-2020.pdf.

[441] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020, s G6(1)(e), available at: https://comcom.govt.nz/__data/assets/pdf_file/0017/60542/Electricity-distribution-services-input-methodologies-determination-2012-consolidated-20-May-2020-20-May-2020.pdf.

[442] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020, s G6(1)(f), available at: https://comcom.govt.nz/__data/assets/pdf_file/0017/60542/Electricity-distribution-services-input-methodologies-determination-2012-consolidated-20-May-2020-20-May-2020.pdf.

[443] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020, s G6(1)(v), available at: https://comcom.govt.nz/__data/assets/pdf_file/0017/60542/Electricity-distribution-services-input-methodologies-determination-2012-consolidated-20-May-2020-20-May-2020.pdf.

[444] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020, G6(1)(g)(viii) and s G6(1)(h), available at: https://comcom.govt.nz/__data/assets/pdf_file/0017/60542/Electricity-distribution-services-input-methodologies-determination-2012-consolidated-20-May-2020-20-May-2020.pdf.

[445] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020, G6(1)(g)(ix), available at: https://comcom.govt.nz/__data/assets/pdf_file/0017/60542/Electricity-distribution-services-input-methodologies-determination-2012-consolidated-20-May-2020-20-May-2020.pdf.

E33.10 provided an opinion as to whether the key assumptions, input data and forecasting methods used in determining demand forecasts were reasonable; and whether it was appropriate to use these to determine the capex and opex forecasts.[446]

E33.11 used a number of assessment techniques to test the CPP proposal material and explained why particular techniques were used and why others were not.[447]

E33.12 listed the information that was relied on in the verification process.[448]

E33.13 identified information that was omitted or incomplete and the impact this had on the Verifier's review.[449]

E33.14 identified what additional information may be necessary to complete the review of the proposal.[450]

E33.15 explained why it has selected the identified programmes in accordance with clause G4(1).[451]

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[446] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020, G8, available at: https://comcom.govt.nz/__data/assets/pdf_file/0017/60542/Electricity-distribution-services-input-methodologies-determination-2012-consolidated-20-May-2020-20-May-2020.pdf.

[447] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020, G9(1) and G9(2), available at: https://comcom.govt.nz/__data/assets/pdf_file/0017/60542/Electricity-distribution-services-input-methodologies-determination-2012-consolidated-20-May-2020-20-May-2020.pdf.

[448] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020, G11(a), available at: https://comcom.govt.nz/__data/assets/pdf_file/0017/60542/Electricity-distribution-services-input-methodologies-determination-2012-consolidated-20-May-2020-20-May-2020.pdf.

[449] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020, G11(b) and (d), available at: https://comcom.govt.nz/__data/assets/pdf_file/0017/60542/Electricity-distribution-services-input-methodologies-determination-2012-consolidated-20-May-2020-20-May-2020.pdf.

[450] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020, G11(c), available at: https://comcom.govt.nz/__data/assets/pdf_file/0017/60542/Electricity-distribution-services-input-methodologies-determination-2012-consolidated-20-May-2020-20-May-2020.pdf.

[451] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020, G11(e), available at: https://comcom.govt.nz/__data/assets/pdf_file/0017/60542/Electricity-distribution-services-input-methodologies-determination-2012-consolidated-20-May-2020-20-May-2020.pdf.

E33.16 provided a list of key issues that it considers we should focus on and specify information that would assist us in our assessment of the proposal.[452]

E33.17 identified any other information held by the CPP applicant that would assist us in our assessment of the proposal.[453]

E34 Finally, the Verifier in its review must conclude with an opinion on whether the opex programme of work meets the expenditure objective.[454] If not, it must identify:

E34.1 if further information is required and, if so, what type of information is required;

E34.2 which of the forecast opex programmes might warrant further investigation by us; and

E34.3 what type of assessment might be most effective.

E35 In our Limb 2 bottom-up review of the Verifier's report we scrutinised several of the Identified Programmes and tested to what extent the Verifier had:

E35.1 considered whether the policies and planning standards were applied appropriately, and whether policies regarding the need for, and prioritisation of, the project or programme were reasonable and had been applied appropriately;[455]

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[452] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020, G12(a) and (b), available at: https://comcom.govt.nz/__data/assets/pdf_file/0017/60542/Electricity-distribution-services-input-methodologies-determination-2012-consolidated-20-May-2020-20-May-2020.pdf.

[453] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020, G12(c), available at: https://comcom.govt.nz/__data/assets/pdf_file/0017/60542/Electricity-distribution-services-input-methodologies-determination-2012-consolidated-20-May-2020-20-May-2020.pdf.

[454] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020, G6(2), available at: https://comcom.govt.nz/__data/assets/pdf_file/0017/60542/Electricity-distribution-services-input-methodologies-determination-2012-consolidated-20-May-2020-20-May-2020.pdf.

[455] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020, G6(1)(g)(i) and G6(1)(g)(ii), available at: https://comcom.govt.nz/__data/assets/pdf_file/0017/60542/Electricity-distribution-services-input-methodologies-determination-2012-consolidated-20-May-2020-20-May-2020.pdf.

E35.2 assessed the process undertaken by the CPP applicant to determine the reasonableness and cost-effectiveness of the chosen solution, including the use of cost-benefit analyses to target efficient solutions;[456]

E35.3 reported conclusions on the approach used to prioritise opex projects over time including the application of that approach for the next period;[457]

E35.4 considered the impact on other cost categories including the relationship with opex, and links with other projects;[458]

E35.5 considered whether the opex project or programme should be included as a contingent project or part of a contingent project.[459]

E35.6 provided an opinion on the reasonableness and adequacy of any asset replacement models used to prepare the opex forecast including an assessment of the inputs used within the model, and the methods the CPP applicant used to check the reasonableness of the forecasts and related expenditure.[460]

The Verifier provided a heavily qualified verification of opex

E36 Following Aurora's submission of its CPP proposal on 12 June 2020, we have critically reviewed the verification report and the techniques and methods the Verifier has used to test Aurora's proposal against the requirements of Schedule G. This review included a two-day workshop with the Verifier on June 2020 to test the Verifier's findings and to seek clarification of report material.

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[456] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020, G6(1)(g)(iii), available at: https://comcom.govt.nz/__data/assets/pdf_file/0017/60542/Electricity-distribution-services-input-methodologies-determination-2012-consolidated-20-May-2020-20-May-2020.pdf.

[457] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020, G6(1)(g)(iv), available at: https://comcom.govt.nz/__data/assets/pdf_file/0017/60542/Electricity-distribution-services-input-methodologies-determination-2012-consolidated-20-May-2020-20-May-2020.pdf.

[458] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020, G6(1)(g)(vi) and G6(1)(g)(vii), available at: https://comcom.govt.nz/__data/assets/pdf_file/0017/60542/Electricity-distribution-services-input-methodologies-determination-2012-consolidated-20-May-2020-20-May-2020.pdf.

[459] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020, G6(1)(g)(x), available at: https://comcom.govt.nz/__data/assets/pdf_file/0017/60542/Electricity-distribution-services-input-methodologies-determination-2012-consolidated-20-May-2020-20-May-2020.pdf.

[460] Electricity Distribution Services Input Methodologies Determination 2012 [2012] NZCC 26 consolidated 20 May 2020, G6(1)(g)(i), available at: https://comcom.govt.nz/__data/assets/pdf_file/0017/60542/Electricity-distribution-services-input-methodologies-determination-2012-consolidated-20-May-2020-20-May-2020.pdf.

E37 We consider that the Verifier's findings were useful in identifying areas needing further analysis, however as the Verifier hadn't undertaken this analysis, further work was required by us before we could reach a draft decision on how much of Aurora's opex proposal to approve.

E38 While the Verifier stated it had reviewed 92% of Aurora's opex proposal and verified 88% of it, it concluded that many aspects of the opex proposal needed to be investigated by us. We consider that there is a disconnect between the Verifier's very high verification approval rate (96%) and its identification of so many issues needing further analysis.

E39 Table E3 sets out a summary of our top-down Limb 1 test of the Verifier's report against the Schedule G requirements. Table 3 sets out a summary of our bottom-up Limb 2 test against the Schedule G requirements, for the vegetation opex programme, as an example of how we tested the Verifier's report.

Opex IM variations

E40 In determining a CPP, and with the agreement of Aurora, we may vary an IM that would otherwise apply to Aurora for the CPP regulatory period.[461]

E41 Our draft view is that we should agree and seek to agree with Aurora on two IM variations that relate to operating expenditure. These are variations to the:

E41.1 IM that requires Aurora to use cost allocation in its forecast opex, that are consistent with its 2019 information disclosure. The IM variation would allow Aurora to use cost allocation in its forecast opex, that would better reflect its change in operating structure following an independent review by Deloitte in 2016. We estimate that this variation would increase Aurora's maximum allowable revenue by approximately $4 million over a five-year CPP regulatory period; and; and

E41.2 definition of 'actual opex' so that the penalty that Aurora incurred on 23 March 2020 for breaching its quality standards, will not be included in the IRIS calculation and shared with consumers (for further detail on our draft view on IM variations that we consider should apply to Aurora, see Attachment I).

[461] Commerce Act 1986, section 53(V)(2)(c).

Table E3 Review of Verifier analysis against Schedule G opex requirements – Limb 1 top/down review

Schedule G requirement	Schedule G topic	Key conclusions of Verification in meeting Schedule G requirements
G6(1)(a)(i),(ii) and G6(1)(b)	Policies and planning standards	• The Verifier tested opex policies and planning standards including those that were the key drivers for expenditure. These policies and planning standards were also tested at the program level to assess whether they had been applied appropriately and supported meeting the expenditure objective. • The Verifier concluded that Aurora's current policies and planning standards for most opex programs have led to efficient forecasts but that these policies and planning standards are presently at a low level of maturity. • Aurora has management processes in place that support the present policies and planning standards, but these are not yet fully documented. • The Asset Management Plan (AMP) has been used as a source of policies and planning standards and a reference source to standards used. This has been supported by staff experience. • The Verifier concluded that efficient application of AMP limited by data availability and data quality and recommends Aurora develop data standards documentation as this will assist in optimising investment strategies over the CPP period.
G6(1)(a)(iii) and G6(1)(c)	Key assumptions relied on	• In its review of the proposal material the Verifier identified the key assumption used by Aurora, tested these against what it would expect to see from a prudent electricity lines company. Verifier reviewed the method used to develop assumptions, assessed how these were applied and considered their impact on the opex forecasts. Some of Aurora's key assumptions included: - Asset maintenance strategies need to be improved to address the WSP findings from the network review and the asset management capability requires enhancement; - Need to ensure compliance, safety, support for proposed network capex work, and planned asset management; need to adopt a new strategy for vegetation management; need to undertake a substantial amount of work to improve asset condition and performance data; and - The provision of new roles within SONS program will have net benefit for consumers; current people costs are not sufficient to deliver the corporate and business services needed to support the network over the CPP period. • The Verifier concluded that Aurora's key assumptions relating to the opex forecast are reasonable, except for the efficiency of RY18 vegetation management and RY19 maintenance expenditure, and how it has forecast maintenance expenditure reductions as a result of its new contracting arrangements and asset renewal expenditure.

Schedule G requirement	Schedule G topic	Key conclusions of Verification in meeting Schedule G requirements
G6(1)(d)	Opex drivers not covered	• The Verifier identified the following key opex drivers that are not directly covered by the key assumptions: - The establishment of organisational structure that will support the asset management and system operations activities previously done by Delta; - Addressing gaps (identified from Deloitte's external review) in the organisational structure with regards to business support FTEs, which are necessary to support the regulatory, financial and enhanced customer engagement activities; and - A change in maintenance strategy from reactive to more preventative approaches is needed to address safety and reliability risks on the network.
G6(1)(e)	Methodology to forecast opex and capex/opex linkages	• The Verifier provided clear explanations and recommendations for our review as it reviewed methods to forecast opex and linkages with capex. • Aurora reactive to proactive maintenance approach is prudent and will likely result in lower whole of life costs; proposed asset maintenance strategies for preventive, corrective and reactive maintenance generally GEIP. • Aurora has used base step and trend to forecast maintenance opex but it does not appear that FY19 is an efficient base year. High when compared to other electricity lines companies. • For maintenance expenditure appropriate modelling has been undertaken to determine forecast expenditures, including using the network scale assumptions. • Vegetation management modelling and transition to five-year cut cycle is appropriate but unit rate appears inefficient. • Establishing its own in-house business support capability is consistent with the Deloitte recommendations and GEIP. • SONS and people costs uplift sufficiently challenged by Aurora Board and management. SONS and people expenditures in RY19 do not appear inefficient. • Not reasonable to apply network growth to SONS and people cost forecasts over CPP period.

Schedule G requirement	Schedule G topic	Key conclusions of Verification in meeting Schedule G requirements
G6(1)(f)	Opex reduction initiatives	• The Verifier concluded that it was not aware of specific opex reduction initiatives proposed by Aurora. • The Verifier expects some of the opex and capex initiatives proposed by Aurora for the CPP period to result in opex reductions over that period. • Aurora applied some top-down efficiency adjustments in specific opex programs, e.g. efficiency reductions to reactive and corrective maintenance from proposed renewal expenditure reducing faults. • The Verifier view that the proposed adjustments are modest in relation to benefits that could be reasonably expected from: - changes in the contracting model; - improved asset management planning; and - processes that should come from the planned ICT expenditure. • The Verifier concluded that the limited justification for the proposed adjustments made it hard to validate whether they are reasonable. Based on the information available, it was unable to provide a view as to exactly what reductions were possible.
G6(1)(g)(v)	Capital costing methodology, unit rate sources, their efficiency and project contingencies.	• The Verifier identified that Aurora's cost estimation processes were not well-developed and recommended a range of improvement initiatives. • Aurora has no unit rate custodian or defined process for changing unit rates and work program building blocks that feed into cost estimates. The Verifier recommended that a process for this be included in the asset management system. • Unit rate bottom-up reviews also needed to be regularly carried out to improve project and program cost estimation. Vegetation management unit rates may improve with FSA testing. • Aurora's building blocks models need to reflect standard assumptions to enable benchmarking against other electricity lines companies and industry. Post-project reviews also needed to be carried out to test cost estimate accuracy. • The Verifier tested numerous project and programs and found Aurora had not included any explicit cost contingencies in its cost estimations. • Aurora has introduced a new FSA framework to ensure that, for many projects and programs, contracting costs are efficient.

Schedule G requirement	Schedule G topic	Key conclusions of Verification in meeting Schedule G requirements
G6(1)(d)(viii) **and** **G6(1)(g)(ix)**	Cost control, delivery performance, and procurement efficiency	• The Verifier states that Aurora management team has gained recent project delivery experience and changed its service delivery model. Incentive arrangements for contractors have been introduced into new FSA arrangements to improve efficiency. • Governance arrangements appear consistent with other electricity lines companies - there are specific committees and governance groups overseeing spending decisions and tracking overall performance against budgets. New project management tool Sentient will assist in managing and tracking projects. • The Verifier reviewed the Aurora work programs, capacity required to deliver efficiently, and service requirements for contractors to deliver efficiently and concluded these were reasonable and consistent with GEIP. • Aurora has a challenging work program but has plans to 'levelise' this over CPP period to maintain contractor work which should improve delivery efficiency. • The Verifier identified that resource constraints due to other electricity lines company work programs have not been considered by Aurora though. • Procurement efficiencies lightly tested by Verifier although Aurora new FSA arrangements should improve work program delivery efficiencies. External review by Jacobs about likely unit rates for assets should improve asset procurement outcomes. Verifier concluded these strategies were reasonable and consistent with GEIP.
G6(1)(h)	Deliverability	• The Verifier was generally positive about Aurora initiatives and processes to manage delivery and maintain efficiency. • Aurora's experience with its rapid risk mitigation expenditure delivery program since 2017 has seen it improve its contracting model, introducing new incentive arrangements to ensure that the service provision from the market remain competitive and to improve service delivery outcomes. • There is no comment about how Aurora will maintain specific project or program cost control and what specific cost control mechanisms are in place at a project or program level. • The Verifier states that Aurora's approach to deliverability appears well considered and discussions with new and existing service providers are well advanced. • The Verifier provides a number of improvement initiatives that Aurora could use to ensure deliverability of work program is maintained such as tracking asset replacement volumes and having real-time visibility of project and program completion percentages and costs incurred.
G6(2)(a)	Expenditure objective met or further information required	• The Verifier noted that the information provided by Aurora Energy on forecast corrective maintenance was generally sufficient for it to undertake its verification; and it was not aware of any information that it considers was omitted by Aurora Energy.

Schedule G requirement	Schedule G topic	Key conclusions of Verification in meeting Schedule G requirements
G6(2)(b) and (c)	Expenditure objective met or further assessment by us and what type of assessment	• The Verifier provided clear directions on areas where we might focus our review attentions namely and the type of review we might carry out. Key areas include: - test RY20 ID data to test CPP modelling assumptions for base step and trend; - for maintenance expenditure test whether RY19 is efficient and whether it is appropriate to use the information disclosure data to benchmark it against other electricity lines companies; - whether actual costs for maintenance in RY20 identify any efficiencies achieved through the introduction of the FSAs; - consider further productivity improvements from proposed ICT investment and people or changes to contracting arrangements; - vegetation management - consider whether RY18 expenditure used to determine the unit rate, is efficient; - for SONS and people costs test whether applying network growth factor is appropriate; - test consistency of capitalised and expensed people costs consistent in capital and operating programme; and - consider whether the proposed staffing level is efficient for a network the size of Aurora's.

Table E4 Review of Verifier analysis against Schedule G requirements – Limb 2 bottom up review of vegetation management

Schedule G requirement	Schedule G topic	Key conclusions of verification in meeting Schedule G requirements
G6(1)(g)(i) and G6(1)(g)(ii)	Policies and planning standards applied appropriately.	• The Verifier tested opex policies and planning standards including those that were the key drivers for expenditure. • These policies and planning standards were also tested at the project and program level to assess whether they had been applied appropriately and supported meeting the expenditure objective. • Verifier concluded that Aurora Energy has generally prepared the opex forecast in accordance with the policies and planning standards available at the time and, in some cases, those that it is still developing. • Verifier also noted: - the bulk of Aurora Energy's policies and planning documents appear of a nature and sufficient quality or the opex forecast to meet the expenditure objective; and - overall, the documents are sufficient for the development of the opex forecasts, as they support a maintenance regime based on cyclic/routine preventive maintenance. • The Verifier notes that AE's Vegetation management is undertaken generally in accordance with Electricity Regulations 2003 (Tree Regulations) but notes that Aurora is cutting trees in public areas and those designated "Declared No interest" back further than is required by the current Tree Regulations. However, the Verifier considers this strategy should improve the overall efficiency of the vegetation management program. • The Verifier notes Aurora has started implementing a new vegetation management standard that requires a five-year cutting cycle, which is consistent with GEIP.
G6(1)(g)(iii)	Process to determine reasonableness and cost-effectiveness of solution, including use of CBA.	• In its review of the proposal material the Verifier considered that Aurora had identified reasonable drivers for its proposed expenditure. These included: - complying with tree regulations; - providing a safe network for the public, its staff and contractors; - reducing the risk of vegetation related events damaging network equipment; and - providing a reliable network for customers, while meeting agreed service levels. • However, the Verifier noted that Aurora did not appear to have compared the forecast costs of its strategy to the expected benefits and thus had not demonstrated the cost effectiveness of its approach. • The Verifier also noted however, that forecasting expenditure at historical levels would also not appear prudent as it would continue Aurora's current reactive approach – which is unsustainable and inconsistent with the tree regulations.

Schedule G requirement	Schedule G topic	Key conclusions of verification in meeting Schedule G requirements
G6(1)(g)(iv)	Approach used to prioritise opex projects.	• Aurora's historical approach to prioritisation based on a reactive approach; vegetation management activities were undertaken only when Aurora Energy became aware of tree regulations clearance requirements not being met. • The Verifier notes that by contrast, the forecast costs are based on the introduction of cyclic cutting on a five-year cycle in all areas. • The Verifier also concluded that Aurora Energy had used a detailed analysis of estimated exposed vegetation by feeder to determine the need and then prioritise both the catch up and ongoing cutting requirements.
G6(1)(g)(vi) and G6(1)(g)(vii)	Impact on other cost categories and links with other projects.	• Regarding linking the impacts of vegetation management to other cost categories the Verifier concluded that: - the reduction in vegetation outages will also likely reduce reactive and corrective maintenance requirements; however - neither of these links appear to have been reflected in Aurora's respective expenditure forecasts. • The Verifier also noted Aurora has: - stated that transitioning to a five-year cutting cycle will improve reliability and has factored in some impact on planned SAIDI from vegetation management expenditure; but - it has not done so for unplanned SAIDI or SAIFI.
G6(1)(g)(x)	Whether opex should be contingent project	• No contingent projects were identified by Aurora. We have decided not to approve some projects due to demand uncertainty and we are addressing the contingent project issue with an IM amendment.
G6(1)(i)(i)	Reasonableness of opex model inputs	• The Verifier considered the assumptions used to forecast the quantity of exposed vegetation requiring management were not unreasonable. • Aurora applies a unit rate to the volumes data in its calculation of vegetation management costs. However, the quality of the unit rate information is low. • The Verifier concluded regarding the reasonableness of the unit rate: - Aurora Energy was not able to provide any other cost information, either from its own historical records or from its current service provider, Delta - In the absence of alternative information, Aurora Energy used the average cost across its network from RY18 data on trimming, customer liaison, traffic management and administrative costs. - This means that the unit rate implicitly reflects the mix of activities and costs incurred in RY18 in different areas (urban/semi-rural and rural) and different regions (Dunedin/Central Otago).

Schedule G requirement	Schedule G topic	Key conclusions of verification in meeting Schedule G requirements
G6(1)(i)(ii)	Methods used to check forecasts	• The Verifier identifies that as part of auditing Aurora Energy's related third-party transactions for 2019, KPMG reviewed its vegetation costs. KPMG's benchmarking relied upon a cost per kilometre comparison as the primary benchmark and concluded that Aurora's ratio of vegetation expenditure is below: - the most comparable networks in the South Island; and - the other networks in the lower South Island. • The Verifier also undertook its own benchmarking of Aurora's vegetation management expenditure, noting that Aurora was 40+% above its peers.

CPP opex proposal key issues and observations commentary

E42 This section is a short observation summary of the Aurora CPP opex proposal and the key issues identified. It discusses key areas of a CPP proposal and can be read prior to the opex project and programme analysis section of this attachment.

E43 Aurora proposed opex expenditure of $252.9 million of which the Verifier reviewed $229.2 million (approximately 92% of the proposal). The verifier verified, on a qualified basis,[462] $220.0 million out of the $229.2 million it reviewed.

E44 To assist us, we engaged Strata to carry out a review of the more material aspects of the Verifier's conclusions and this review identified several issues in key opex categories such as vegetation management, SONS and people costs, where Aurora did not appear to compare well against its peers.[463]

E45 We reviewed Strata's work, and our draft decision is that downward adjustments are necessary to ensure that the opex allowances we set are prudent and efficient in meeting the expenditure objective.

E46 The main adjustments are a reduction in SONS and people Costs. A significant rationale for this was set out by Strata after comparing Aurora's proposed expenditure in this area with that of Powerco:

> We expect that, overall, Powerco's staffing needs under SONS should be greater than Aurora's—Powerco's network is almost four and a half times as long as Aurora's and Powerco has over three and a half times as many ICPs as Aurora. That Aurora proposes to outspend Powerco in SONS opex under the CPP reinforces our view that Aurora's staffing level does not meet the expenditure objective

E47 We also undertook top-down benchmarking to 'sense-check' whether the proposed reductions recommended by Strata were appropriate. We benchmarked Aurora's CPP opex expenditure levels against a cohort of electricity lines companies with comparable customer densities (ICP/network length), and opex expenditure levels of what Aurora appeared to consider were steady state in RY30.[464] We tested the RY30 opex as Aurora appeared to consider this was likely to be business as usual in terms of predicted asset health.

E48 Figure E2 presents our top-down benchmarking 'sense-check' results and shows that Aurora's proposed CPP expenditure and RY30 expenditure could be considered outliers when compared to electricity lines companies with a similar ICP density.

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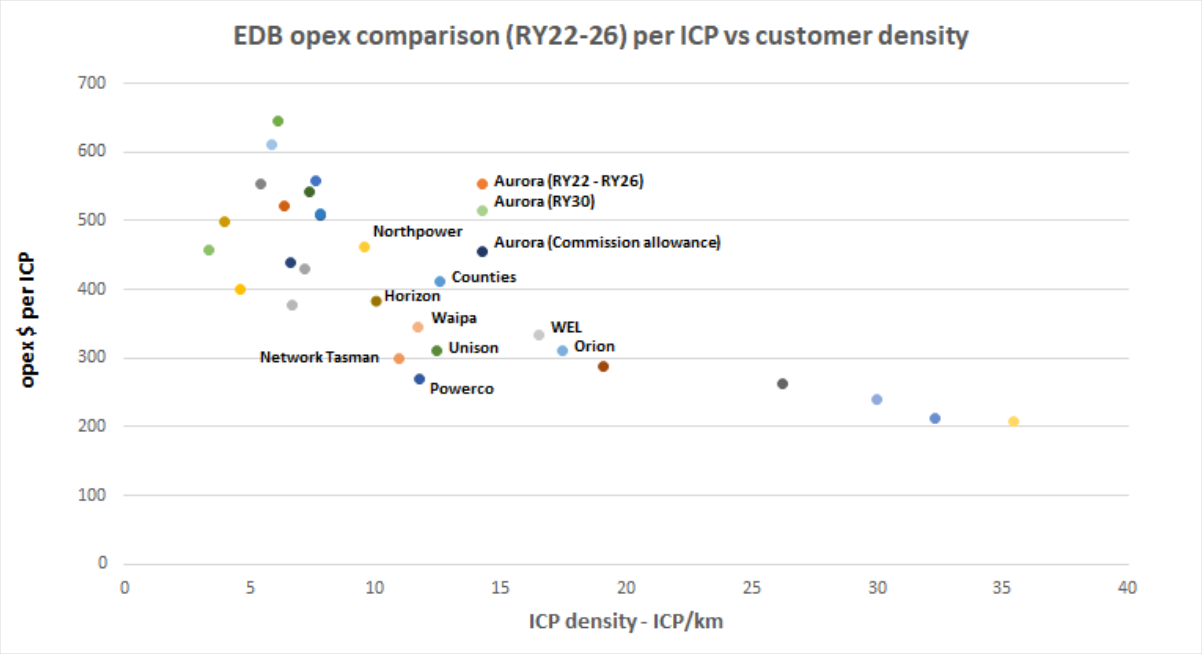
[462] Refer to issues noted by the Verifier in para E9

[463] We assessed the consistency between capitalised and expensed SONS and people expenditure internally.

[464] Aurora Energy "Asset Management Plan - April 2020 - March 2030" (12 June 2020), p.vii

E49 Our proposed CPP opex allowance result shows that this expenditure level appears to benchmark more reasonably against these cohort electricity lines companies, albeit our proposed allowance is still above Aurora's closest peer comparators such as Counties Power, Unison Networks, Waipa and Powerco.[465]

Figure E2 Aurora top-down ICP density 'sense-check' benchmarking



E50 After our review we are satisfied that the Strata analysis and recommendations for opex allowance reductions are reasonable and have accepted these.

E51 In Table E3 below we have summarised our expenditure changes in this draft decision. In-depth analysis of how expenditure changes were justified are presented in the opex project and programme analysis section of this attachment.

[465] The ICP/line length density cohort also comprised Waipa Networks, Unison Networks, Counties Power and Powerco.

Table E5 Summary of changes to Aurora's CPP expenditure proposal

Opex Category	Summary of charges	Proposed ($million)	Reduction ($million)
Vegetation management	• Unit rate not supported	$21.2	$5.1
Maintenance (preventive, corrective and reactive)	• Network growth trend multiplier removed from corrective and reduced for reactive • Reduction proposed step change in corrective maintenance opex generated by additional defects identified by increased preventive maintenance	$70.3	$0.9
SONS	• Reduced due to expenditure inefficiency • Network growth trend multiplier removed • Reduced proposed increase to insurance premia	$80.4	$25.0
People	• Reduction proposed for staff training costs • Reduction proposed due to expenditure inefficiency • Network growth trend multiplier removed	$40.3	$13.2
Governance and Administration, Premises and Plant	• Reduction proposed due to efficiency benefits from bringing in-house a material amount of its legal work	$20.7	$1.1

E52 We note that the proposed changes are significant and mostly relate to non-network opex. Having reviewed the information and analysis provided by Aurora, the Verifier and Strata's, we have concluded that the proposed expenditure is not fully supported as being prudent and efficient.

E53 However, we do think that it is important to consider what effect such a large expenditure reduction is likely to have on Aurora's ability and incentives to operate, and whether approving such reduced levels are consistent with our purpose under Part 4.

E54 We also note the expenditure levels are lower than those which Aurora would have been allowed under our DPP process especially beyond RY23. The DPP was set in a relatively cost way using RY19 as the base year for a step and trend analysis and was not the result of a detailed expenditure category by category analysis of expenditure by independent experts and ourselves.

E55 The analysis that has supported our CPP allowance conclusions more accurately reflects Aurora's unique operating environment, whereas DPP allowances are set in a relatively low-cost way and generally do not consider businesses individual circumstances.

E56 We are mindful that Aurora is a business in transition that is having to effectively set-up a range of asset management and network business processes and that in the interim we have to accept that there will be some inefficiencies. This is reflected in the allowances we have set in this draft decision.

E57 Strata observe that there are several non-essential asset management initiatives and one-off set-up projects and processes in Aurora's proposal, and it has not properly accounted for the one-off or temporary nature of these initiatives in its forecast. We would expect that when these end that they would reduce the SONS and people cost estimates over the CPP period and our proposed opex allowance reflects that

E58 We are willing to accept that Aurora will not be operating at the optimal level of efficiency in the early part of the CPP and that it does have an increased work programme.

E59 We also note that the monitoring and accountability requirements we are placing upon them, and while we do not consider these would be an imposition on a well-performing electricity lines company, they will mean some additional work for Aurora, and our allowances also reflect that.

E60 In consideration of these factors, our draft decision is that:

E60.1 we are not approving an increase to Aurora's proposed top-down and trend efficiencies as recommended by the Verifier and Strata. Instead we have retained Aurora's proposed efficiency improvements and will rely on the IRIS mechanism to drive further efficiencies over the CPP period; and

E60.2 for SONS and people we have approved an upper bound estimate by Strata of the appropriate expenditure allowance for these expenditure areas, which is higher than Strata's base case recommendation.

Opex Project and Programme Analysis

E61 In the following sections we have reviewed Aurora proposed spending across the each of the opex categories. Within each category we have explored issues that were raised by the Verifier.

E62 Below is a summary of the categories and issues reviewed to allow for easier navigation within the document:

Table E6 Reviewed issues by opex category

Opex category	Reviewed issues
SONS & People	• Whether the proposed level of expenditure on SONS and people is efficient • Proposed increases in insurance premia • Capitalisation of SONS and people Costs • Application of a network growth factor to SONS and People • Proposed increase in staff training
Vegetation management	• The efficiency of Aurora's vegetation unit rate
Maintenance	• Aurora's consumer pole maintenance expenditure • Application of a growth factor to corrective and reactive maintenance • Proposed increase in defects requiring corrective maintenance • Efficiency of RY19 maintenance opex base year
Premises, Plant and Insurance & Governance and Administration	• Premises, Plant and insurance • Governance and Administration

Systems Operations and Network Support (SONS) and people costs

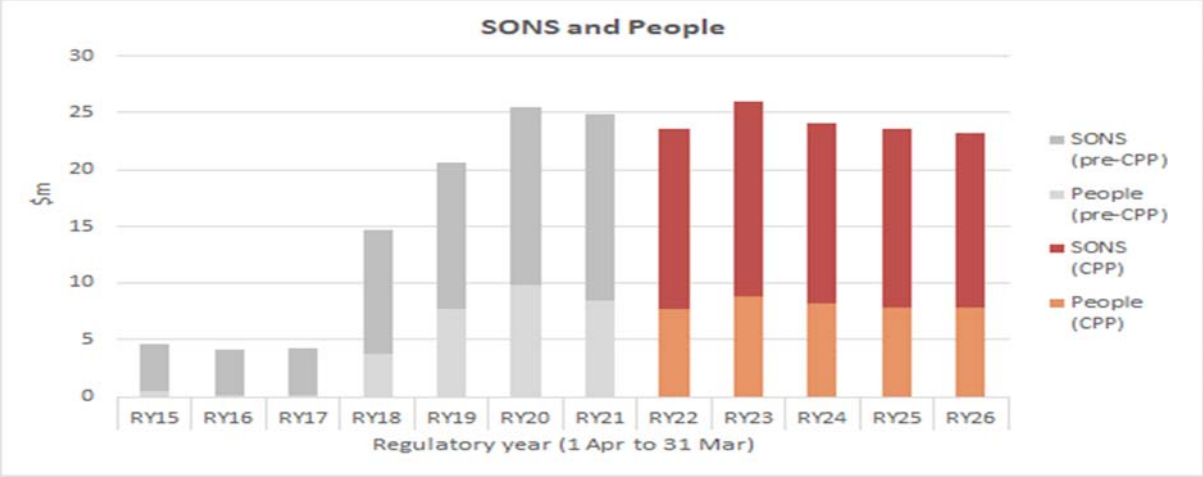
Background

E63 Aurora has proposed spending $80.4 million over the five-year CPP period (see Figure E3) in its SONS programme and $40.3 million in its people costs programme.[466,467]

[466] The SONS programme covers the costs relating to managing and operating Aurora's electricity network. It excludes expenditure on capital projects, network equipment, field services and corporate costs (Aurora Energy, "SONS portfolio overview document" (29 April 2020), p. 1.

[467] The people programme covers the cost of employing business support staff and external service providers. It contains people costs for several corporate functions—accounting and finance and risk assurance, communications, human resources, information technology (IT), regulatory and commercial (Aurora Energy, "people costs portfolio overview document" (29 April 2020), p.1.)

Figure E3 SONS expenditure between RY15 and RY26



E64 Aurora considers that this expenditure is necessary because it will support:

E64.1 improvements in asset management capability to drive better network performance, deliver a safe and more reliable network and achieve lower costs through an extended field services arrangement;

E64.2 a co-ordinated approach to the management of network operations and performance, customer engagement and works delivery; and

E64.3 preparation of the distribution network for the anticipated increase in penetration of photo-voltaic (PV) installations and electric vehicles (EV).

E65 Prior to July 2017, Aurora Energy paid an annual fee to Delta to provide asset management and SONS services. Aurora Energy effectively had no SONS staff of its own.

E66 A review by Deloitte in 2016 recommended a new operating structure and governance arrangements for asset management activities and most of the identified roles have now either been filled or committed to, with many of these costs reflected in the RY19 base year expenditure.

What the Verifier said

E67 The Verifier concluded that $77.1 million of the SONS costs were verified with the unverified amount of $3.3 million being due to the removal of network growth effects and a step change in insurance being too high, and that $37.7 million of people costs was verified with the unverified amount being $2.6 million due to the removal of network growth effects and a step change in training costs being unsupported.

E68 While the Verifier considered it had verified a significant portion of the proposed amounts in the SONS and people cost expenditure categories, it provided us with a list of areas we may wish to consider in our own review (see paras 36-37) such as:[468]

E68.1 whether it is appropriate to rely on board and management oversight to ensure that the step up in actual SONS and people costs in recent years is prudent and efficient

E68.2 whether it is appropriate to use a base, step and trend approach to forecast SONS and people costs given that it is effectively standing up a new team, where historical costs are less relevant;

E68.3 whether the assumption that SONS and people costs expenditure will grow over the CPP and review periods in line with network scale;

E68.4 what level of staffing is efficient for a network like Aurora Energy's;

E68.5 whether the proposed step changes (e.g. training costs) are efficient;

E68.6 whether there is consistency between capitalised and expensed SONS and people cost expenditure across the capex and opex programmes;

E68.7 whether the proposed efficiency improvements proposed are reasonable, considering the increased expenditure in business support systems through the ICT capex programme of work;

E69 While some of these issues are more material than others, the fact that the Verifier questioned the FTE numbers is fundamental to setting an efficient level of opex. Following our analysis we have reached quite different conclusions to the Verifier in key areas such as whether the SONS and people expenditure and FTE levels appear efficient.

E70 In our review of the Verifier's report we note that its benchmarking results of Aurora against New Zealand electricity lines companies suggested Aurora may have proposed excessive expenditure and that this did not support the Verifier view that Aurora benchmarked reasonably.

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[468] Farrier Swier "Verification Report – Aurora Energy CPP Application" (8 June 2020), Table 7.1 p.133-140, available at: https://comcom.govt.nz/__data/assets/pdf_file/0028/218593/Farrier-Swier-Consulting-Pty-Ltd-and-GHD-Pty-Ltd-Aurora-Energys-CPP-application-Verification-report-8-June-2020.pdf

E71 For example, in Figure C.36 of the Verifier's report, which is reproduced below as Figure E4, a SONS expenditure per totex ratio vs ICP density scatter plot was presented that showed Aurora was spending much more in RY2019 in the SONS category than electricity lines companies with a similar ICP density (such as Unison, Counties Power and Powerco). We also consider the trend line used in Figure E4 should not be relied upon given the very low 0.07 R-squared value associated with it.

E72 We are unclear why adding a trendline is appropriate in an ICP density comparison analysis like this mainly because the intent of an ICP density plot is to compare businesses with a similar ICP density (in this case Unison, Counties Power and Powerco). In this case vertical line comparisons are appropriate.

E73 If we were to consider that a linear trendline analysis was appropriate, the trend line used in Figure E4 could not be relied upon given the very low 0.07 R-squared value associated with it (this is the measure of the error associated with the linear curve fit. An R-squared value of 0 indicates maximum curve fit error and an R-squared value of 1 indicates there is no curve fit error).

E74 Finally, we are also not convinced that totex ratio benchmarking using a single year is a reasonable approach given Aurora is a business in transition and capex can fluctuate significantly year on year for each business.

Figure E4 2019 SONS expenditure per totex ratios vs customer density[469]

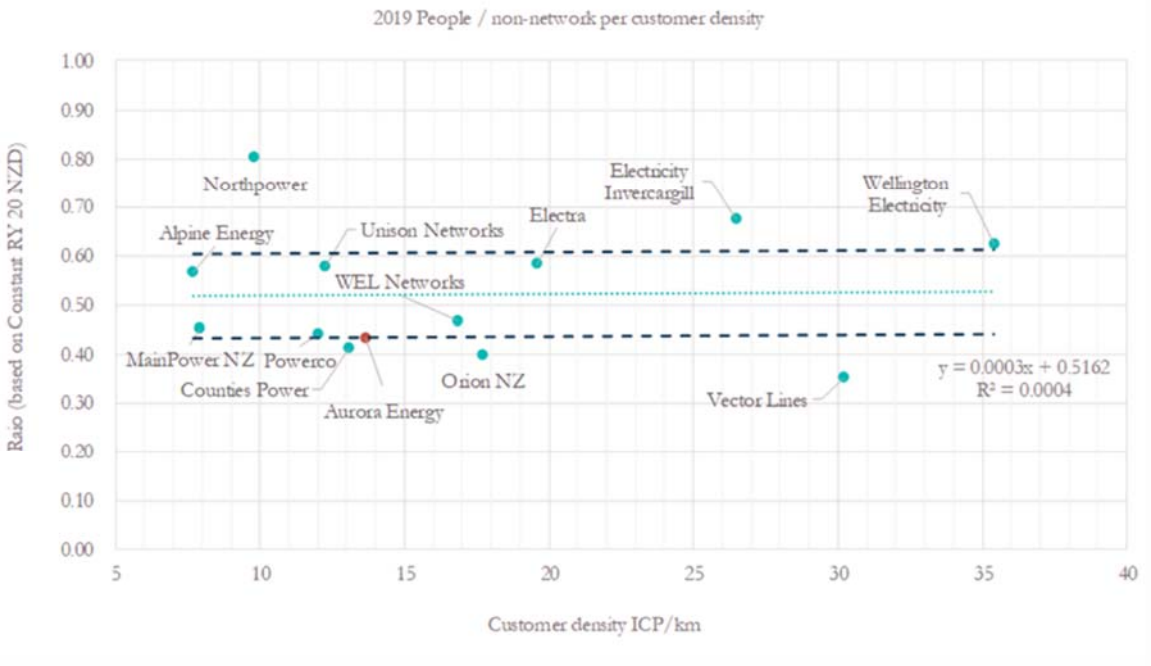
E75 When RY2019 people costs were benchmarked by the Verifier (see Figure E5 – Figure C40 in Verifier's report - people costs per non-network totex vs ICP density) Aurora non-network totex ratio appears to benchmark well against other electricity lines companies.

E76 However, we note Aurora's non-network totex ratio is low because it includes Aurora's large SONS programme in the denominator. We also note that this graph is actually benchmarking business support costs not people costs (discussed further below).

[469] Farrier Swier "Verification Report – Aurora Energy CPP Application" (8 June 2020), Figure C.36 p.323, available at: https://comcom.govt.nz/__data/assets/pdf_file/0028/218593/Farrier-Swier-Consulting-Pty-Ltd-and-GHD-Pty-Ltd-Aurora-Energys-CPP-application-Verification-report-8-June-2020.pdf

Figure E5 2019 people expenditure per non-network totex ratios vs customer density[470]

Figure C.40: People expenditure per non-network totex vs customer density ($2020, $million)



Source: Commission published data. Farrierswier and GHD analysis.

E77 The Verifier then compared Aurora's expenditure and FTE's against two smaller electricity lines companies from Australia and concluded that: [471]

> Both comparisons suggest that RY19 expenditure and the actual and proposed staffing levels are comparable with that of similar sized and larger EDBs. As such, RY19 expenditure does not appear inefficient.

E78 Subsequent to finalising its report, we asked further questions of the Verifier about its NZ and Australian people benchmarking. In particular, we confirmed with the Verifier that its people costs benchmarking both with the NZ and Australian electricity lines companies was in fact comparing electricity lines companies' Business Support costs not people costs.

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[470] Farrier Swier "Verification Report – Aurora Energy CPP Application" (8 June 2020), Figure C.36 p.323, available at: https://comcom.govt.nz/__data/assets/pdf_file/0028/218593/Farrier-Swier-Consulting-Pty-Ltd-and-GHD-Pty-Ltd-Aurora-Energys-CPP-application-Verification-report-8-June-2020.pdf

[471] Farrier Swier "Verification Report – Aurora Energy CPP Application" (8 June 2020) p.336, available at: https://comcom.govt.nz/__data/assets/pdf_file/0028/218593/Farrier-Swier-Consulting-Pty-Ltd-and-GHD-Pty-Ltd-Aurora-Energys-CPP-application-Verification-report-8-June-2020.pdf

E79 Business support costs include additional expenditure such as Governance and Administration, IT opex and Plant, Premises and insurance costs. People costs represent only 50% of the Aurora's CPP business support costs. Consequently, we do not consider that the Verifier's benchmarking analysis in Figure E5 is comparing the same categories of expenditure with other electricity lines companies.[472]

E80 In summary, while the Verifier makes the conclusion that Aurora "does not appear inefficient" it concluded that we may wish to investigate whether Aurora's level of staffing was efficient. We agreed that this was a key area for us to review.

E81 We engaged Strata to review the material issues raised by the Verifier with a focus on the step changes in the SONS category and the uplift in FTE's in the people costs. We also requested that Strata test the Verifier's conclusions about staff training, insurance premia, and network growth being applied to SONS and people costs. Finally we sought further clarification about how Aurora was capitalising SONS and people costs.

Issues Paper package and submissions received

E82 In our Issues Paper package, we discussed most of the opex forecast observations made by the Verifier and sought consumer views about the issues we suggested we might investigate further.

E83 In its submission Aurora noted that it has identified several areas where it required opex to further improve its asset management practices (e.g., asset information, asset management information systems) and delivery capability improvements[473].

E84 More generally it noted that we appeared to have adopted the Verifier's recommendations for further analysis, and that we should rely on the Independent Verifier's findings in completing our review.[474]

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[472] Note that our draft decision has been to approve 97% of the non-people related expenditure in the Business Support category.

[473] Aurora Energy "Submission on Aurora Energy's Issues paper" (20 August 2020), p.21, available at: https://comcom.govt.nz/__data/assets/pdf_file/0027/224487/Aurora-Energy-Submission-on-Aurora-Energys-CPP-Issues-paper-20-August-2020.pdf

[474] Aurora Energy "Submission on Aurora Energy's Issues paper" (20 August 2020), p.20, available at: https://comcom.govt.nz/__data/assets/pdf_file/0027/224487/Aurora-Energy-Submission-on-Aurora-Energys-CPP-Issues-paper-20-August-2020.pdf

E85 Although some submitters agreed with the need for improvements in Aurora asset management systems and processes a number had concerns about staffing levels and remuneration, specifically that Aurora appeared to have a top-heavy management structure with too many high paying executive and management level positions.'[475]

E86 For example, one submitter noted that: [476]

> As of 2019 at Aurora 48 employees were paid more than $100,000 per year including 6 paid more than $200,000. The CEO received over 500,000. The previous year, 31 employees were paid over $100,000 while the highest salary was between 300,000 and 310,000. With these salaries the workers should have been managing the assets to a satisfactory standard. The excuse for the increase in salaries now has been Aurora transitioning to a stand-alone company and retaining expertise... this is ridiculous.

E87 Another submitter suggested that: [477]

> Money must be spent on maintenance and not administration (including maintenance administration). Aurora should be required to show that their maintenance planning has the minimum amount of maintenance administration and overhead costs that is possible to achieve safely.

E88 Richard Healey noted that there had been significant increases in Aurora's wage bill despite no change in headcount stating that:[478]

> During its first year of operation as a standalone company, 2018, Aurora had 135 employees and paid them $10,469,000 (according to the annual report). In 2019 the company still had 135 employees, paying them $12,621,000.

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[475] Item 8 "Submission on Aurora Energy's CPP Issues paper" (27 August 2020), available at: https://comcom.govt.nz/__data/assets/excel_doc/0016/224413/1-50-Submissions-on-Aurora-Energys-CPP-Issues-paper-27-August-2020.xlsx

[476] 0447 "Submission on Aurora Energy's CPP Issues paper" (8 August 2020), available at: https://comcom.govt.nz/__data/assets/pdf_file/0019/224434/0447-Submission-on-Aurora-Energys-CPP-Issues-paper-8-August-2020.pdf

[477] 0479 "Submission on Aurora Energy's CPP Issues paper" (19 August 2020), available at: https://comcom.govt.nz/__data/assets/pdf_file/0023/224447/0479-Submission-on-Aurora-Energys-CPP-Issues-paper-19-August-2020.pdf

[478] Richard Healey "Submission on Aurora Energy's CPP Issues paper" (27 August 2020), available at: https://comcom.govt.nz/__data/assets/pdf_file/0021/224517/Richard-Healey-Submission-on-Aurora-Energys-CPP-Issues-paper-27-August-2020.pdf

Our view

E89 Most Issues Paper package submissions on opex focussed on salaries, and that these were either excessive or that salary increases hadn't been justified. Salaries were tested by the Verifier in its review and it concluded that: [479]

> Staff remuneration has been benchmarked against the national median salary for a similar role, with salaries set within a band of 85-115% of the median value for each role. We reviewed and confirmed most salaries fell within this band and the overall average for Aurora Energy is 96% of the median.

E90 Strata reviewed the remuneration currently paid for more than 100 (greater than 70%) of Auroras existing positions against the market benchmark data for equivalent sized roles. This information was provided by Aurora.

E91 Strata concluded that the Aurora base salary and total remuneration levels are approximately 95% of the present market-based remuneration levels. This is consistent with the Verifier's conclusions.

E92 While we were satisfied then that the salary levels themselves appeared to compare reasonably with industry, we considered that the number of staff needed to be investigated further and this is the focus of our review of the SONS and people costs.

Whether the proposed level of expenditure on SONS and people is efficient

E93 To test the efficiency of the SONS and people costs, we sought additional information from Aurora about its business structure, FTE decision making for a business its size, and how it had mapped the functions carried out by Delta to its new stand-alone business. [480]

E94 In deciding that its organisational structure was appropriate Aurora:

E94.1 compared its staffing levels with other electricity distribution businesses and used its staff industry knowledge to test whether this was reasonable;

E94.2 carried out benchmarking using a non-network opex ratio for RY19 and concluded that it benchmarked well against its peers; and

E94.3 subjected current and forecasted staffing levels to a staff consultation process and a series of Executive and Board challenges.

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[479] Farrier Swier "Verification Report – Aurora Energy CPP Application" (8 June 2020) s C.20.5.4 p.305, available at: https://comcom.govt.nz/__data/assets/pdf_file/0028/218593/Farrier-Swier-Consulting-Pty-Ltd-and-GHD-Pty-Ltd-Aurora-Energys-CPP-application-Verification-report-8-June-2020.pdf

[480] RFI Q028 - Decisions on forecast FTEs and RFI Q047 - Reconciliation of FTEs in transfer of functions from Delta to Aurora

E95 We tested the mapping of former Delta staff functions to Aurora to determine what new business activities were being proposed and whether there might be duplication of roles between the two businesses.

E96 Aurora responded stating that:[481]

E96.1 104 staff transferred from Delta in 2017;

E96.2 33 of those roles no longer exist or have materially changed leaving 71 roles the same as those transferred from Delta;

E96.3 25 roles have been transferred from Delta but have since been modified;

E96.4 four control room roles have been 'insourced' from Delta since July 2017; and

E96.5 58 new FTE roles have been created resulting in a total of 158 as at June 2020.

E97 We requested further information about the role mapping from Aurora as we were not only interested in the FTE numbers but also the roles that they were engaged in. Aurora provided this information which enabled Strata to carry out its analysis of Aurora's organisational structure.

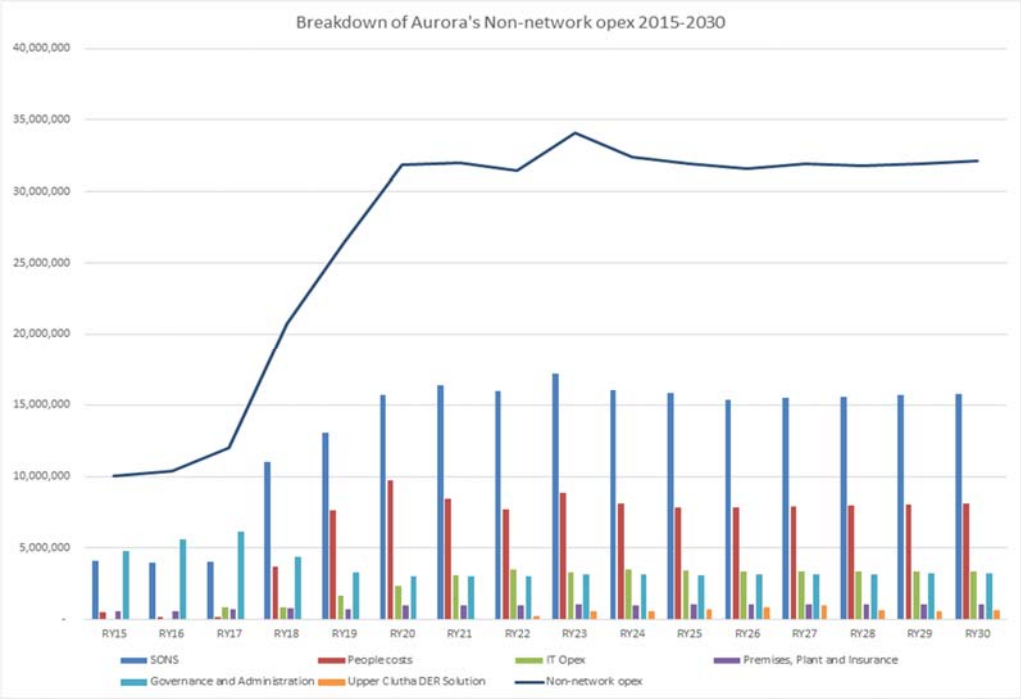
E98 This request provided tables of Aurora's organisational structure for Aurora to complete. It also requested that Aurora quantify the number of roles that were proposed to undertake significant new activities that Delta was not undertaking prior to 1 July 2017.

Strata's analysis

E99 In its analysis Strata identified that the primary reason for the expenditure uplift across the SONS and people Costs programmes (see Figure E.6) is additional FTE resourcing. Secondary reasons include some minor cost category reallocation and wage inflation, where Aurora had assumed an annual wage inflation of 2.54% compared with a compound annual growth rate of 1.9% from Statistic NZ's labour cost indices.

[481] RFI Q059 – Reconciliation of FTEs in transfer of functions from Delta to Aurora (follow up request to Q047).

Figure E6 Aurora's non-network opex (SONS and people costs) 2015–2030



E100 Strata noted that Aurora is proposing a 52% increase in resourcing compared to the 108 roles that used to exist in Delta. Strata reviewed tables from Aurora's RFI responses showing:

E100.1 the breakdown of the 158 staff roles that Aurora is proposing, the roles that transferred to Aurora from Delta, and the roles that are additional to these transferred roles; and

E100.2 Aurora's description of the significant work in each of Aurora's business units that Delta previously was not undertaking.

E101 Strata noted that it was not clear that all the new activities described by Aurora were activities that Delta was not undertaking prior to 1 July 2017. In reaching this conclusion it reviewed Aurora's historical documentation and disclosures and determined that some of these activities were being undertaken in the past by Delta.

E102 Strata also reviewed Aurora's process for making staffing decisions. It noted that:

E102.1 Aurora has provided no evidence, either to the Verifier or us, of the business cases supporting the uplift in staffing levels;

E102.2 there appeared to be little focus placed on looking for efficiency and productivity gains across roles;

E102.3 Aurora's approach to benchmarking needed to be carefully evaluated;

E102.4 it is unclear how Aurora's Board gained enough comfort about Aurora's planned human resourcing expenditure over the space of a few years; and

E102.5 the absence of an independent industry expert assisting Aurora to assess an appropriate level of human resourcing was surprising

E103 Strata also concluded that it did not place a significant amount of weight on the Verifier's comparison of SONS and people costs against RY19 totex ratios, because:

E103.1 a comparison of peer distributor totex ratios is difficult because Aurora is undertaking a major capex programme and Powerco is the only other distributor in a comparable capex uplift position;

E103.2 totex ratio benchmarking is problematic because there will be variability of capex across distributors in any one year due to different capex/opex strategies, asset life cycle stages, and capex conversion rates. Totex ratio benchmarking is more appropriate over a longer period; and

E103.3 RY19 opex is not an appropriate point estimate for benchmarking comparison purposes. This is because it is difficult to say RY19, or RY20, can be considered an appropriate base year as Aurora's business is not in a 'steady state'. The risk is that R19 overstates a steady state level of efficient expenditure on the Aurora network.

E104 Strata also concluded that it had reservations about using a base-step-trend approach to forecast SONS and people costs opex. Since separating from Delta on 1 July 2017, Aurora has undergone significant change, and that while many of the activities undertaken in the SONS and people costs programmes of works are recurring, a number are not.

E105 Strata undertook a top-down benchmarking supported by several analyses to test the Aurora SONS and people costs forecasts.

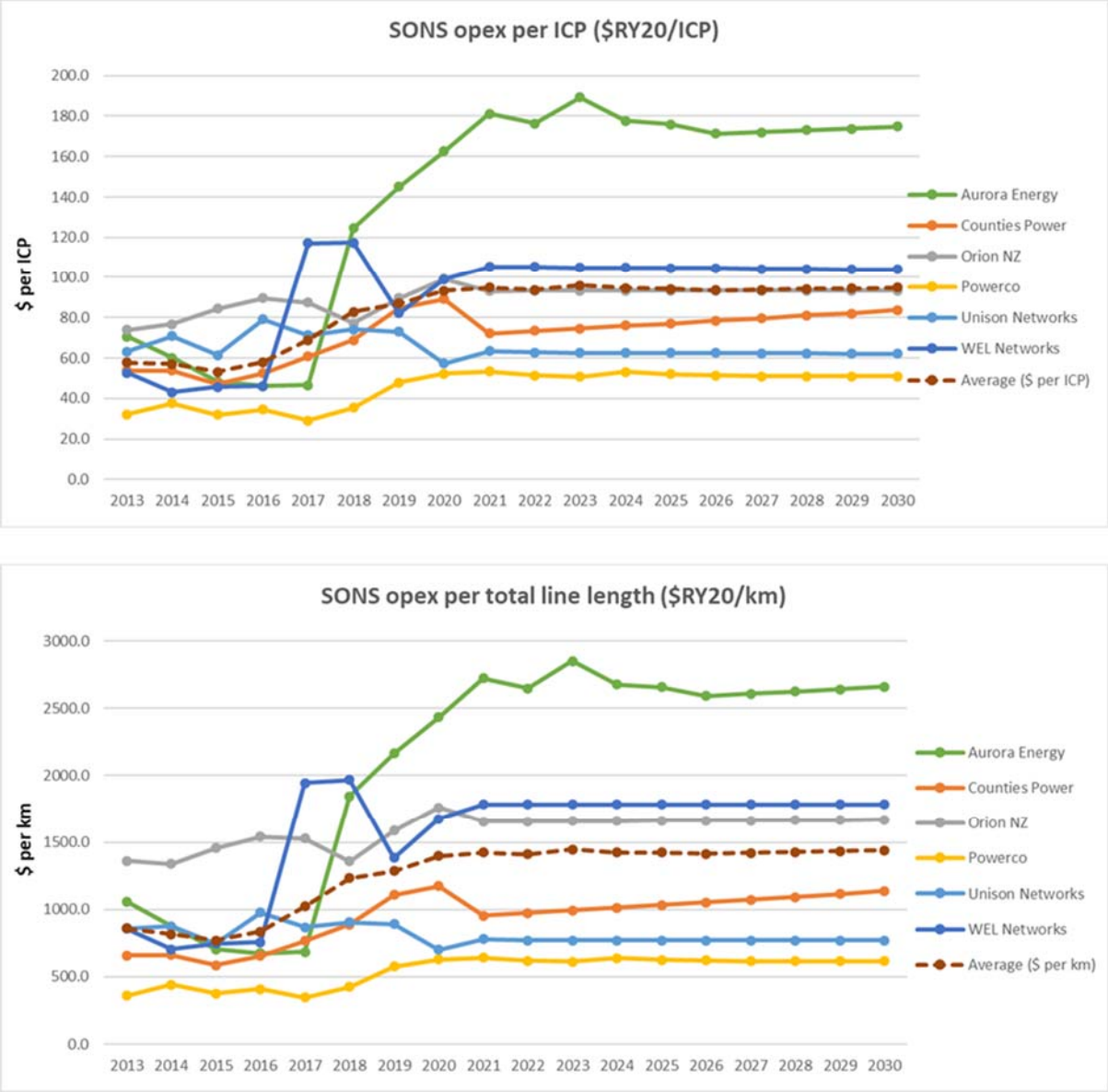
Top-down benchmarking

E106 Strata undertook opex vs ICP density benchmarking that compared Aurora's SONS and Business support opex against that of a cohort of five distributors with a similar customer density per kilometre to Aurora and with similarly sized networks to Aurora.[482]

[482] The companies included in Strata's analysis were Aurora, Counties Power, Orion NZ, Powerco, Unison Networks, and WEL Networks.

E107 Its benchmarking showed that Aurora's SONS opex on a per ICP and per km basis was, on average, 93%/94% of the cohort average between 2013 and 2017, and on average, at 182% of the cohort average between 2018 and 2030 for SONS opex (see Figure E7).[483]

Figure E7 Comparison of Aurora's SONS opex with peer distributors2015–2030



[483] Business support opex is one of the Information Disclosure opex categories and was used for comparison purposes by Strata as people costs are not disclosed by electricity lines companies.

E108 Strata notes that in contrast to SONS opex, Aurora's Business Support opex is not an outlier although near the top of the cohort. Over the period 2013-2017, Aurora's Business Support opex on a per ICP and per km basis is, on average, 66%/70% of the cohort average, with this increasing to 126%/132% of the cohort average over the period 2018-2030.

E109 In its analysis, Strata used the results from its benchmarking as a basis to inform reductions in Aurora's SONS and People expenditure levels. Strata adjusted Aurora's opex per ICP in these categories be aligned with that of the cohort average over RY21-RY30.

E110 Strata then removed non-staff costs and divided the remaining predominantly staff costs-only figure by Aurora's average annualised remuneration in order to calculate a top-down number of FTEs Aurora could employ with this lower level of non-network opex expenditure. This equated to 82.5 to 90 FTEs.[484]

E111 To allow for the fact that Aurora's resourcing requirements will be higher during the CPP, than before and after it, Strata increased Aurora's proposed FTE allowance over this period by the percentage increase that occurred in Powerco's non network expenditure categories under its CPP as shown in Table E5. This resulted in an adjusted FTE range of 119 to 131 (see Table E9 further below).

Table E7 Increase in Powerco's opex under Powerco's CPP

Expenditure category	Increase / per ICP	Increase / per km of total line length
SONS opex	49%	54%
Business support opex	11%	15%
Total Non-network opex	22%	26%

E112 We also investigated the expenditure uplift for Orion under its CPP required to enable a significant rebuild of its network as a result of 2010 and 2011 earthquakes.[485]

E113 Table E8 demonstrates that Orion experienced a significant uplift in its SONS expenditure since 2010. Orion's average annual SONS expenditure over the CPP (between 2014-2019) is 46% higher than SONS expenditure in 2010.

[484] Based on Aurora's average annualised remuneration for ex Delta roles, as of 01 July 2020

[485] Note that Orion's exemption from ID reporting in 2011, and an absence of non-opex expenditure information in its ID disclosures prior to 2010 made it difficult to accurately assess the quantum of Orion's expenditure uplift.

E114 Since 2010 there has been relatively minor growth in Orion's total circuit length and ICP numbers, as a result, compared to 2010, on a SONS per km and SONS per ICP basis, Orion's average across the CPP period was 39% and 44% higher, respectively. This is a comparable to the SONS uplift, on a per ICP and per km basis, experienced by Powerco (and applied by Strata in its analysis, as noted in para E110).

Table E8 Increase in Orion's SONS expenditure (2010-2019)[486]

Year	SONS ($m nominal)	SONS per km of total line length ($/kms)	SONS per ICP ($)
2010	11.8	$1,097	$61
2011	-		
2012	13.3	$1,225	$70
2013	14.5	$1,331	$76
2014	14.9	$1,376	$79
2015	16.6	$1,507	$87
2016	17.9	$1,596	$93
2017	17.7	$1,572	$90
2018	15.7	$1,379	$79
2019	18.3	$1,595	$90

Bottom-up analysis

E115 Strata undertook its own bottom-up 'senior management challenge' of Aurora's FTE headcount by reviewing Aurora's proposed roles in undertaking new activities in each business unit.

E116 Strata's key conclusions about the proposed FTE roles included that:

E116.1 it was not sure that all the new activities Aurora proposed were not being carried out by Delta prior to 1 July 2017. This was based on a review of Aurora's historical documentation, including Aurora's 2017 Asset Management Plan which reported on the period just prior to Aurora's separation from Delta in July 2017;

[486] Orion NZ, Information Disclosures (2010-2019), available at: https://www.oriongroup.co.nz/corporate/regulatory-disclosures/information-disclosures/

E116.2 several of the roles are transitional - for example, the preparation of standalone policies for Aurora. Strata stated that it would expect to see a reduction in SONS and people costs opex over time as these transitional projects are completed and that this is not evident from Aurora's forecasts; and

E116.3 some roles could be rationalised given Aurora is not a large electricity lines company.

E117 Strata concluded that Aurora's uplift in roles could be reduced by between 30% and 50% based on its understanding of the electricity lines company sector and the type of roles that are necessary for a business of Aurora's size.

E118 Strata then reviewed the results of its two approaches (senior management challenge and top down benchmarking) and took an average of the results to estimate that 127.5 FTE's appeared appropriate, compared with Aurora's proposed 158. The full analysis results are presented in Table E9.

Table E9 Strata's adjusted SONS and people cost headcount over 2022–2026, with allowance for CPP[487]

Scenario		Adjusted staff headcount (SONS)	Adjusted staff headcount (people costs)	Adjusted staff headcount (total)
Strata 'senior management' challenge – lower bound	CPP year one	85	42	127
	CPP year three	82	42	124
Strata 'senior management' challenge – upper bound	CPP year one	92	48	140
	CPP year three	86	46	132
[Top down Benchmarking] SONS opex is 45% of Aurora's forecast and Business support opex is 70% of Aurora's forecast—only SONS opex and people costs opex are subject to scaling		88.5	30.5	119
[Top down Benchmarking] Non-network opex is 60% of Aurora's forecast—only SONS opex and people costs opex are subject to scaling		84.5	46.5	131

E119 Using its central recommended figure of 127.5, Strata then converted this into non-network expenditure and folded non-staff costs back into the forecasts to calculate its recommended expenditure levels for SONS and people costs.

[487] Strata calculated that based on the numbers in E7, the average headcount over years 1–2 of the CPP period is 129 (SONS: 87; people costs: 42): The average headcount in year 3 of the CPP period is 127.5 (SONS: 86; people costs: 41.5)—which is also the average headcount over the 5-year review period: The average headcount over years 4–5 of the review period is 126 (SONS: 85; people costs: 41).

E120 We requested that Strata estimate upper and lower bound FTE figures around the central result of 127.5 from its bottom-up senior management challenge and top-down benchmarking. Strata concluded that an upper bound FTE value could be 136.[488] Our reasons for applying the upper bound FTE value is discussed in paras E154-E160.

E121 We wanted to test the range of estimates it had made, being mindful of the fact that, while top-down cohort benchmarking and a direct Powerco comparison may be reasonable approaches to take to judge FTE numbers in a stable business operating situation, that:

E121.1 apart from Powerco and its CPP, the other electricity lines company businesses in the benchmarking cohort were operating in a business-as-usual environment;

E121.2 Powerco's asset management maturity at the time of its CPP appeared to be higher than Aurora's when it submitted its CPP; [489] and

E121.3 Aurora's capex renewals and network maintenance work programmes appeared to be higher relative to its historical expenditure than Powerco's.

The effect of our accountability measures

E122 As part of our decision we intend to impose a range of accountability measures on Aurora using an Information Disclosure (ID) reporting mechanism. We acknowledge that this will increase Aurora's work programme and have a cost associated with it.

E123 Our current view is that these measures are necessary to ensure that Aurora undertakes additional engagement with its customers and is held to account for the work it intends to deliver. This is a key aspect of our decision and will help provide consumers with assurance that Aurora is delivering its CPP programme works and making asset management improvements.

E124 While we have yet to consult on these proposed measures, we have given some consideration as to whether Aurora may require an additional opex allowance to fulfil these possible requirements.

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[488] Strata also compared the average AMMAT scores of Aurora and Power at the time the CPP's were lodged. Aurora has an average AMMAT score of 2.13 while Powerco's was 2.40.

[489] Strata estimates that several roles will no longer be needed as a result of transitional activities ending (eg, development of standalone Aurora policies following Aurora's separation from Delta; establishing new processes for data, communications and information management). In year 1 the upper bound estimate is 140 FTEs, from the middle of year 3 the estimate is 132 FTEs. 136 is the average of these two numbers.

E125 The proposed ID reporting requirements will include:

E125.1 asset management initiatives - including cost estimation and data quality improvements and demonstration of work delivery quality assurance outcomes; and includes the possibility of an independent mid-CPP period review to assess progress against Aurora's CPP work programme;

E125.2 enhanced delivery reporting that provides information for consumers at a regional level;

E125.3 enhanced quality outcome reporting that provides information for consumers at a regional level;

E125.4 reporting of consultation regarding its existing charter and proposed changes; and

E125.5 publication of enhanced pricing information for consumers.

E126 Many of the ID reporting requirements, are related to asset management improvements and these are initiatives Aurora has already committed to doing, such as improving its cost estimation processes, implementing asset management systems, improving asset condition understanding and data systems, and developing asset criticality and risk modelling. We understand that these initiatives are already built into Aurora’s work programme.

E127 Aurora would incur additional costs for the proposed expert mid-period review, but we don't consider that a full qualitative engineering assessment is required. Rather we think a top-down process review is enough with limited bottom-up testing (possibly 50-60 hours by a reputable consultant if all the information is provided to it).

E128 It is likely that additional work will be needed to package the new asset management related ID information for reporting purposes. But our current view is that this should only be a marginal enhancement of existing Asset Management Plan reporting to meet the requirements of Information Disclosure Schedule A. We consider that the additional resourcing will not be significant in this regard and might reasonably be carried out by the same resource(s) that constructs the Aurora AMP information in conjunction with Aurora’s Customer and Engagement business unit.

E129 The Annual Delivery Report, Quality Outcome Report and "reporting on consultation on Aurora's existing charter and proposed changes" are new requirements for Aurora. The first two will require a combination of customer relationship staff liaising with engineering staff.

E130 Most of the engineering information about what has and hasn't been delivered against the plan and the quality metrics should be readily available internally at Aurora for the purposes of its internal Board reporting and monthly status updates. If so, the additional burden from collecting the information for this new reporting requirement, should be minimal.

E131 We applaud the statement by Aurora in its Issues Paper package submission that it supports the Annual Delivery Report.[490]

> Aurora Energy recognises the importance of delivery reporting and considers that the annual delivery report framework established in the supplementary s53ZD notice to the Powerco CPP determination is appropriate. Some changes should be anticipated, however, to cater for the different drivers for Aurora Energy's CPP and the fact that some of the systems proposed in our plan that will support enhanced reporting will not be immediately available from the Commencement of the CPP period.

E132 We note also that Aurora is presently providing update reports to us every three months about how it is addressing the WSP safety issues; so, its internal technical reporting processes seem to be in place already. This experience should assist Aurora in completing the annual delivery reporting.

E133 Aurora is also investing in a range of financial and asset management software packages during the CPP. Aurora has advised us that: [491]

> We anticipate the CPP reporting requirements will be closely aligned to our own business reporting needs. We have recently initiated a reporting workstream to revisit our broader reporting requirements, the data sources and the platform/software options for collating and presenting our key performance metrics.
>
> We anticipate that most of the CPP reporting will be relatively low cost from a systems perspective to implement (if not already in place). However, we have some concerns about the potential 'man-hour' costs of the regime. We expect that our ability to report some metrics on a regular interval basis will take time to implement efficiently, especially where this involves the use of a new system

E134 The deliverables we are proposing will need to be packaged for consumers which is the target audience. Most of the effort will likely need to be in the set-up phase with subsequent annual reporting being updates.

E135 Presently Aurora has proposed a total of 11 staff in its Customer and Engagement business unit.

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[490] Aurora Energy "Cross-submission on Aurora Energy's CPP Issues paper" (18 September 2020), available at: https://comcom.govt.nz/__data/assets/pdf_file/0018/225450/Aurora-Energy-Cross-submission-on-Aurora-Energys-CPP-Issues-paper-18-September-2020.pdf

[491] RFI Q038 - Delivery processes - tracking and quality of delivery.

E136 Based on the information currently available to us, we consider that the staff dedicated to Customer and Engagement for a business the size of Aurora should be adequate to produce an Annual Delivery Report, Quality Outcome Report and "reporting on consultation on its existing charter and proposed changes".

E137 Lastly, we may propose that Aurora produces more granular and specific pricing information for its various consumers. This may require additional resource to enhance its present pricing model to produce the information.

E138 As part of the CPP review, we were provided with Aurora's indicative pricing model to test the effect of the proposed CPP proposal and any adjustments we made. Commission staff with distribution pricing experience have suggested that it might take one FTE 6 months to develop the granular pricing information we are requesting Aurora to produce, followed by 1-2 months to adequately test it.

E139 In summary, we have not made an explicit opex allowance for meeting the additional requirements. However, as noted in para E56 by choosing the upper bound FTE count estimated by Strata to calculate SONS and People expenditure allowances, and by not applying additional top down efficiencies improvements, we consider that we have allowed for the additional opex Aurora requires to meet the costs associated with the proposed additional requirements. This includes the costs associated with the pricing model development and the mid-period expert review.

E140 We would welcome views through submissions on our initial assessment of whether Aurora may require additional opex to complete these proposed additional ID requirements.

E141 We also note, that in our Powerco CPP decision in 2018, we required Powerco to produce an Annual Delivery Report and hold stakeholder engagement meetings about its project and programme delivery progress. We expected Powerco to absorb the additional cost of reporting the information on the basis that it should be doing this anyway as part of its business-as-usual engagement with consumers.[492] At the time we concluded that:[493]

> We do not agree with the views of MEUG and Contact Energy that the production of a CPP Annual Delivery Report will result in placing unnecessary time and regulatory cost burdens upon Powerco or that it is of little practical value to stakeholders.

[492] We also note that as a listed company Powerco has greater reporting obligations than other electricity lines companies but doesn't receive additional expenditure allowance to compensate for this.

[493] Powerco's customised price-quality path - Final decision 28 March 2018 para 614 p.140.

E142 Similarly, for Transpower RCP3 we imposed several delivery initiatives and did not provide an opex adjustment given that, many of the asset management and modelling enhancements we expected Transpower to carry out, it had signalled it was planning to do anyway.[494]

Direct comparison with Powerco CPP

E143 We also asked Strata to compare Aurora's proposed expenditure levels against those proposed by Powerco in its CPP. Given the upper bound FTE analysis still suggested an FTE reduction, we were interested in this relative comparison given Powerco was a much larger business in terms of circuit length and ICP number (approximately four times larger in each case).

E144 Strata observed that:

E144.1 In the SONS opex programme Powerco sought $87.2 million and Aurora is seeking $80.4 million over the CPP period;[495] and

E144.2 in relative terms, Aurora is proposing an uplift in SONS opex that is $11.5 million higher than the uplift in SONS opex that Powerco received under its CPP proposal.

E145 Strata concluded that:

> As we note above, Aurora is starting from a lower base than Powerco did in terms of asset management maturity. Therefore, we would expect Aurora's staffing needs in this regard to be higher than Powerco's. However, the reverse will apply in relation to each organisation's capex programme.
>
> We expect that, overall, Powerco's staffing needs under SONS should be greater than Aurora's-Powerco's network is almost four and a half times as long as Aurora's and Powerco has over three and a half times as many ICPs as Aurora. That Aurora proposes to outspend Powerco in SONS opex under the CPP reinforces our view that Aurora's staffing level does not meet the expenditure objective

E146 Strata recommended that Aurora's SONS & people costs opex should be reduced based on the mid-point FTE estimate of 127.5.

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[494] Transpower's individual price-quality path from 1 April 2020, Decisions and reasons paper (29 August 2019)

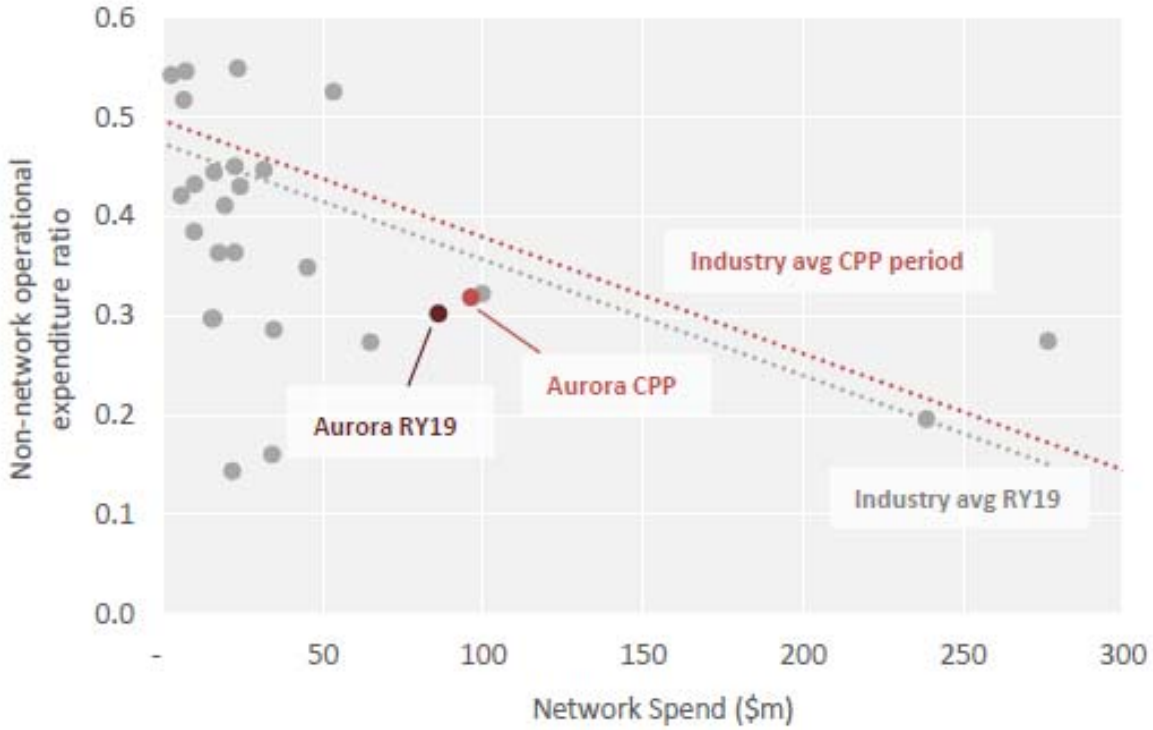
[495] Note the Commission did not approve $9.4 million of Powerco's SONS opex in its CPP decision - Powerco CPP decision Attachment G – Allowance for opex p.91

Our view of Aurora's benchmarking

E147 As part of its proposal Aurora included some high-level benchmarking which it had undertaken in support of its opex forecasts for SONS and people costs. This analysis included benchmarking its non-network opex ratio (non-network opex divided by network expenditure) versus network expenditure against other New Zealand Electricity lines companies. This analysis is reproduced in Figure E8.[496]

E148 Aurora's analysis suggests that Aurora's level of non-network expenditure is not excessive relative to other electricity lines companies, when considering the size of its totex and network expenditure.

Figure E8 Aurora's non-network opex ratio benchmarking analysis



E149 We have also carefully reviewed the key analysis provided by Aurora to support its proposed SONS and people costs forecasts.

[496]RFI Q036 - Information supporting base year opex values, RFI Q037 - DPP allowance estimates in RY2020 $ constant, RFI Q038 - Delivery processes - tracking and quality of delivery, RFI Q039 - Maintenance efficiencies due to new contracting arrangements and RFI Q040 - Preliminary assessment of proposal-information supporting RY2020 opex values

E150 We consider that this benchmarking analysis does not offer strong support for the view that Aurora's SONS and people costs are efficient. This is because unlike the majority of NZ electricity lines companies that are in a business-as-usual capex operating environment, Aurora is undertaking a major capex programme. This has the effect of increasing the denominator in its non-network opex ratio (non-network opex/network spend) and lowering its non-network ratio relative to other electricity lines companies.

E151 Additionally, the industry average trend line in the graph may be misleading given only a few data points exist for electricity lines companies with network expenditure above Aurora's proposed expenditure.

E152 In support of its proposal Aurora also undertook headcount benchmarking against five other electricity lines companies. The comparison did offer some support for the view that Aurora's forecasts implied better efficiency than what small neighbouring electricity lines companies were achieving.

E153 However, we consider that there are limitations to this analysis including that;

E153.1 Aurora's FTE count is 145 in the comparator table, but over the CPP period it is proposing an FTE count of 158;

E153.2 regarding the comparator group with FTE's closest to Aurora, it is noted one lines company headcount 'may not be like for like', and that another lines company head count includes around 20 design staff. It is therefore unclear whether the headcount numbers for these electricity lines companies are directly comparable with Aurora's headcount numbers; and

E153.3 there is an absence of other electricity lines companies which might be useful comparators.

E154 We conclude that it is difficult to make definitive conclusions from Aurora's headcount benchmarking analysis.

Conclusion on FTE's

E155 In conclusion we agree with the top-down bottom-up FTE analysis performed by Strata, and the benchmarking provided by Aurora does not change that view, because, among other things, it appears Aurora:

E155.1 does not have a robust process for making decisions about appropriate staffing levels. For example, there appears to be an absence of business cases and independent expert advice;

E155.2 employs approximately 20% more FTEs than required, based on both Strata's management challenge of the new FTE roles, and its analysis applying opex levels consistent with Aurora's peers; and

E155.3 is proposing greater SONS expenditure than Powerco in absolute terms despite Powerco having approximately four and a half times greater network length and three and a half times as many ICP's.

E156 We consider Strata's observation that Aurora is proposing more SONS expenditure than the Powerco CPP allowance, in absolute terms and on a sustained basis, strongly supports the Strata analysis that Auroras proposed SONS and people expenditure is too high. This is particularly so given the relative differences in network size and customer bases between Powerco and Aurora.

E157 However, as noted earlier, given Aurora's current level of asset management maturity we do not consider that it is reasonable to assume that Aurora will be able to reach an efficient level of expenditure in its SONS and people programmes of work from the start of the CPP period.

E158 We are also mindful that, while the top-down cohort benchmarking and comparison with Powerco's CPP uplift may be reasonable approaches to take to judge FTE numbers, Aurora is not in a stable business-as-usual operating environment, and faces considerable challenges in the near term.

E159 However, we would also expect SONS and people Costs to decrease over the CPP period as the transitional set-up and one-off project and programme roles are completed, but Aurora's forecasts suggest that these costs are sustained even out to RY30.

E160 We have also considered the FTE impact of the proposed additional ID requirements. Based on the information currently available to us, we consider that, while the expectation of the pricing model changes and mid-period expert review, Aurora is already planning to carry out the substance of the initiatives, so it is matter of reporting on these in a meaningful way. Given Aurora has proposed 11 staff for its Customer and Engagement business unit, we consider that it should be able to absorb these initiatives into its existing work programme.

E161 Our draft decision is that Aurora's SONS & people costs opex should be reduced based on Strata's upper bound FTE estimate of 136. We note that the FTE estimate has been used simply as an input into determining Aurora's SONS and people expenditure allowance. We are not approving a lower FTE count for Aurora, or its salary levels, and how Aurora operates and staffs its business within its expenditure allowance is a matter for it to decide.

Insurance premia increases

E162 Aurora's CPP proposal contains a step change in insurance costs—from $412,000 (excluding fire service and EQC levies) in RY20 to $500,000 in RY22 and then $635,000 per annum from RY25 onwards.[497]

E163 In preparing its insurance cost estimate for the CPP, Aurora requested from its insurance broker (Crombie Lockwood) a three to five-year forecast of movements in insurance premiums. Aurora applied, respectively, per annum (real) premium increases of 10%, 10%, 15% and 10%. Aurora also applied an annual (real) increase in travel insurance premiums of 10%.

Strata's analysis

E164 Strata notes that Aurora has taken the mid-point of Crombie Lockwood's ranges for three of the four types of insurance contained in its insurance advice, but for material damage and business interruption, which comprises 60% of the cost of Aurora's insurance premia, Aurora has taken the upper end of Crombie Lockwood's range.

E165 Strata notes that regarding material damage and business interruption insurance, Crombie Lockwood said:

> We have seen the Material Damage and Business Interruption market begin to plateau. It is our expectation that premiums may still rise between 5-10% on a year-on-year like-for-like basis. However, the market fluctuations will also be determined by any major natural disasters or weather-related events over the coming years."

E166 Strata considers that given Crombie Lockwood's advice (specifically, the plateauing of the material damage and business interruption market) an annual increase of 5% would be more likely to meet the expenditure objective than an annual increase of 10%.

E167 Strata recommends that Aurora's proposed step change in SONS opex due to higher insurance premiums be reduced by $247,026 over the CPP period.

[497] Refer to 2020-04-21, Memo from Aurora Energy to Farrier Swier, titled Aurora Energy CPP Application – Revised SONS and PEOPLE Forecasting Models and Step Change support, Attachment 9 – Insurance Forecast spreadsheet ("BS vs SONS" tab)

Our view

E168 We agree with the Strata observation that there appears limited justification for Aurora to apply the upper range of Crombie Lockwood's forecast premium movement to the material damage and business interruption insurance, given Crombie Lockwood's observation that this market has been plateauing. We therefore agree with Strata's recommendations for a reduction of $247,026 over the CPP period.

Capitalisation of SONS and people costs

RFI 24 – people and SONS costs capitalisation

E169 The Verifier identified that it is not clear how capitalised people and SONS costs were factored into the capex forecasts and we were interested to understand more about Aurora's approach to capitalisation, so we asked Aurora to:

E169.1 provide us with the accounting policies for the capitalisation of SONS and people costs and any related guidance documents for application of those policies;

E169.2 show us the quantum of the allocations of the forecast SONS and people costs to the capital and operating forecasts over the CPP and review periods, showing the categories of capex and opex to which it has been allocated;

E169.3 provide us with a summary of the forecast FTEs (for both employees and contractors) supporting the forecasts of people costs over the CPP and review periods; and

E169.4 provide us with comments on any matters raised by its external auditor about its allocations of forecast SONS and people costs to the capital and operating forecasts over the CPP and review periods.

E170 Aurora responded by:

E170.1 referring us to their accounting policies for the capitalisation of SONS and people costs;

E170.2 providing us with analysis demonstrating that during the CPP period the ratio of forecast capitalised labour costs to total employee labour costs remains relatively stable, as does the ratio of forecast capitalised labour costs to total gross capital expenditure;

E170.3 stating that forecasts of staff numbers within the SONS programme of work is 108 throughout the proposed three-year CPP and five-year review period, prior to efficiency adjustments; and

E170.4 confirming that Audit NZ did not identify any areas of non-compliance with the IMs or misstatements related to Aurora's capitalisation of SONS and people costs.

Our view

E171 After reviewing the information provided, we agreed with Aurora's approach to capitalisation of its people and SONS costs, given:

E171.1 Aurora's accounting policies have a clear capitalisation policy which is subject to auditing;

E171.2 across the CPP and review periods there is no significant change in the proportion of labour costs being capitalised of internal labour costs, and no evidence there is a change in the way labour has been capitalised; and

E171.3 Audit NZ did not identify any areas of non-compliance or misstatements related to Aurora's capitalisation of SONS and people costs.

Network growth factor applied to SONS and people Costs

Strata's analysis

E172 Strata agreed with the Verifier's analysis that it is not appropriate to apply a network growth rate to SONS and people expenditure. Strata notes that whilst a growing network will, over time, require more opex relating to system operations, network support and business support, the overwhelming majority of Aurora's opex in the SONS programme of work relates to human resourcing.

E173 Strata considers the staffing levels recruited for the SONS programme of work prior to the start of the CPP period would be able to absorb any incremental activities associated with network growth.

E174 Strata also notes that Aurora anticipates Covid-19 may slow network growth over the next two years, and that given the uncertainty associated with the resumption of international tourism in New Zealand, this effect may persist for longer.[498]

E175 Strata's considers that this outlook strengthens its view that the network scale effect should be removed from the SONS programme of work.[499]

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[498] Aurora's network growth has occurred in Aurora's Central Otago networks.

[499] Aurora Energy "Asset Management Plan April 2020 - March 2030 - Aurora Energy's CPP Application" (12 June 2020) p. 91, available at: https://comcom.govt.nz/__data/assets/pdf_file/0026/219158/Asset-Management-Plan-April-2020March-2030-Aurora-Energys-CPP-Application-12-June-2020.PDF

Our view

E176 We agree with the views of the Verifier and Strata that it is not appropriate to apply a network growth rate to SONS and people costs in this case.

E177 We also note that:

E177.1 our application of a network growth factor under a DPP does not imply that it is necessarily appropriate to also apply this under a CPP. Our approach to setting distributors' allowable revenues under the DPP process is simpler than its approach under the CPP process and includes a less detailed assessment of a distributor's costs and cost drivers;[500]

E177.2 growth in the number of network assets does not necessarily drive increase in SONS and people work; and

E177.3 the staffing levels already recruited prior to the start of the CPP period should be able to absorb any incremental activities associated with network growth, which is not expected to be significant over the coming years.

E178 Our draft decision is to remove the network growth factor from the SONS and people costs forecasts, in line with the Verifier recommendations.

Proposed increase in staff training expenditure

E179 Aurora proposes to increase its average investment in staff training and safety from $1,235 in RY19 to $2,735 in RY22-an increase of $1,500 per staff member, or $234,000 per annum from RY22.

E180 We tested Aurora's staff training budget by asking Strata to review it.

Strata

E181 Strata considers increasing the average allowance per staff member to almost $3,000 per annum would not meet the expenditure objective because:

E181.1 most training is expected to be on-the-job training consistent with Aurora's formal learning and development policy. There is a cost associated with on-the-job training in terms of reduced productivity, but this is a separate cost;

[500] Commerce Commission, 'Opex projections model - EDB DPP3 final determination' (27 November 2019), network opex tab, row 26, available at: https://comcom.govt.nz/regulated-industries/electricity-lines/projects/2020-2025-default-price-quality-path#projecttab

E181.2 Aurora proposes to invest in new systems and processes throughout its business, from asset management to consumer connections to payroll. Undoubtedly training will be needed in these areas, but the cost of this training is likely to be factored into the cost of these investments; and

E181.3 Aurora should be able to achieve economies of scale through onsite training of groups of staff (eg, project management, network coordination, users of Microsoft Office applications).

E182 Strata concluded that a more realistic allowance for Aurora's training costs be $2,000 per staff member per annum rather than the proposed $2,735 per staff member per annum, based on an FTE count of 158.

Our view

E183 We agree with Strata's observations that most training is likely to be on the job, and that Aurora should be able to achieve economies of scale through training groups of staff together.

E184 We have decided in draft that the step change in staff training-related opex be reduced from $2,735 per staff member to $2,000 per staff member per annum.

Conclusion

E185 In conclusion we agree with the top-down bottom-up FTE analysis performed by Strata and do not consider the Aurora SONS and people costs benchmarking is compelling because it appears Aurora:

E185.1 appears to employ more FTEs than required, based on both Strata's bottom up challenge of new FTE roles;

E185.2 does not appear to have a robust process for making decisions about appropriate staffing levels; and

E185.3 is proposing greater SONS expenditure than Powerco in absolute terms despite Powerco having approximately four and a half times greater network length and nearly three and a half times as many ICP's.

E186 We consider the fact that Aurora is proposing more SONS expenditure than Powerco in absolute terms, and on a sustained basis out to RY30, confirms the Strata analysis and is particularly compelling given the relative differences in network size and customer base between the two businesses.

E187 As noted earlier, given Aurora's current level of asset management maturity we do not consider that it is necessarily reasonable to assume that Aurora will be able to reach an efficient level of expenditure in its SONS and people programmes of work at the start of the CPP period.

E188 We are also mindful of the fact that, while the top-down cohort benchmarking and comparison with Powerco's CPP uplift may be reasonable approaches to take to judge FTE numbers, Aurora is not in a stable business-as-usual operating environment, and faces considerable challenges in the near term.

E189 However, we would expect SONS and people costs to decrease over the CPP period as the transitional set-up and one-off project and programme roles are completed, but Aurora's forecasts suggest that these costs are sustained out to RY30.

E190 Taking all matters into consideration and including the adjustments for insurance, network growth and staff training, and using the upper bound FTE figure of 136 from Strata's bottom-up senior management challenge, we have adjusted the SONS and people costs allowances.

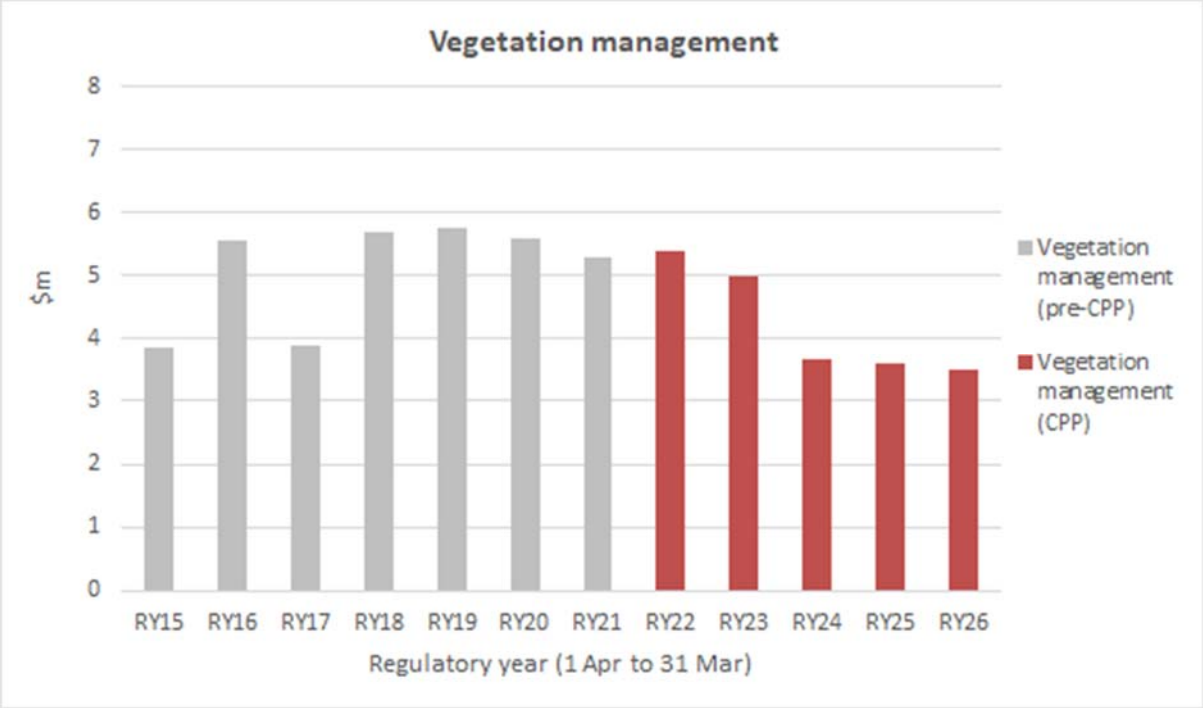
E191 On the basis of the analysis performed, our draft decision is to amend the proposed amount in the SONS and people opex programme from $120.7 million to $82.5 million over the 5-year CPP period, because we consider that this amended amount is likely to be prudent and efficient and meet the expenditure objective.

Vegetation Management

Background

E192 Aurora has proposed spending $21.2 million over the CPP period (see Figure E10) in its vegetation management programme. Aurora considers that this expenditure is necessary to address a vegetation maintenance backlog and move from a reactive to proactive and cyclical vegetation opex strategy.

Figure E9 Vegetation management expenditure between RY15 and RY26



E193 Aurora's vegetation management expenditure has increased in recent years, particularly since 2018, as it states it has begun to undertake catchup maintenance. All of Aurora's vegetation management activities are currently performed by its contractor service provider Delta. Delta, like Aurora, is wholly owned by Dunedin City Holding Ltd.

What the CPP Application says

E194 In its CPP proposal Aurora notes that:[501]

E194.1 its planned expenditure through until RY23 is in line with its historical expenditure to cover its 'first cut' cycle of vegetation management and it will transition to a steady state five-year management cycle in RY24. This coincides with a noted reduction in the forecast amounts from RY24; and

E194.2 it has applied specific efficiency adjustment factors to vegetation management from RY21 and expects to see improvement in contractor productivity following the introduction of a competitive environment and works coordination; and following the implementation of better asset management tools.

[501] Aurora Energy "Asset Management Plan April 2020 - March 2030 - Aurora Energy's CPP Application" (12 June 2020), H.6.3, available at: https://comcom.govt.nz/__data/assets/pdf_file/0026/219158/Asset-Management-Plan-April-2020March-2030-Aurora-Energys-CPP-Application-12-June-2020.PDF

What the Verifier said[502]

E195 The Verifier's analysis of vegetation management expenditure concluded that:

E195.1 Aurora's strategy of transitioning to a five-year vegetation cutting cycle is consistent with good industry practice;

E195.2 the proposed unit rate for undertaking the work – of $98,907 per km– is based on RY18 expenditure that may be inefficient for the following reasons:

E195.2.1 Delta was the sole provider of vegetation services to Aurora Energy in RY18 and these rates are not market tested;

E195.2.2 Delta is a related party, so the Verifier could not presume that Delta's rates to Aurora reflect the outcomes of arms' length negotiations;

E195.2.3 Aurora was not implementing a proactive vegetation management strategy in RY18, meaning the mix of activities required over the CPP period is likely to be different; and

E195.2.4 Aurora's vegetation management expenditure appears noticeably higher than that of other New Zealand electricity distribution businesses on a unit rate basis.

E196 The Verifier suggested we may wish to consider whether the RY18 expenditure, which was used to determine the unit rate, is efficient, and whether top-down efficiency improvements should be applied to reflect improvements and reduced costs from the start of the CPP, rather than gradual improvements during the CPP period.

E197 The Verifier concluded that it could not fully verify the proposed vegetation management expenditure and that $0.8 million remained unverified, based on the assumption that the efficiencies proposed by Aurora (of 8.5% per year by 2026) should apply from RY22.

E198 We agreed with the Verifier's recommendation that further analysis was required particularly to test the unit rates used to forecast expenditure out to RY26. We engaged Strata for this purpose and its recommendations are discussed throughout this section.

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[502] Farrier Swier "Verification Report – Aurora Energy CPP Application" (8 June 2020) Section C20, available at: https://comcom.govt.nz/__data/assets/pdf_file/0028/218593/Farrier-Swier-Consulting-Pty-Ltd-and-GHD-Pty-Ltd-Aurora-Energys-CPP-application-Verification-report-8-June-2020.pdf

Issues Paper package submissions received related to vegetation management

E199 Some submitters supported our focus on scrutinising Aurora's spending on tree trimming, and comments included:

E199.1 the importance of appropriate vegetation management, considering the recent fires in Australia; [503]

E199.2 there have been slow response times by Aurora following notification of a vegetation issue;

E199.3 whether Aurora might be prioritising the easiest areas of vegetation management ahead of the most critical areas;[504] and

E199.4 why overhead lines are not undergrounded to avoid incurring vegetation management costs every year.[505]

Our response to submissions

E200 We are pleased that submitters support our focus on vegetation management and agree it is a critical activity with the potential to directly affect consumer costs and reliability outcomes.

E201 While it is beyond our role to monitor individual consumers' experience of slow response times, we do actively monitor metrics such as CAIDI which show the average outage duration that any given customer would experience on the network. We have not identified any significant deterioration in Aurora's vegetation CAIDI.

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[503] Item 8 "Submission on Aurora Energy's CPP Issues paper" (27 August 2020), available at: https://comcom.govt.nz/__data/assets/excel_doc/0016/224413/1-50-Submissions-on-Aurora-Energys-CPP-Issues-paper-27-August-2020.xlsx

[504] Richard Healey "Submission on Aurora Energy's CPP Issues paper" (27 August 2020), available at: https://comcom.govt.nz/__data/assets/pdf_file/0021/224517/Richard-Healey-Submission-on-Aurora-Energys-CPP-Issues-paper-27-August-2020.pdf

[505] 0433 "Submission on Aurora Energy's CPP Issues paper" (1 August 2020), available at: https://comcom.govt.nz/__data/assets/pdf_file/0015/224421/0433-Submission-on-Aurora-Energys-CPP-Issues-paper-1-August-2020.pdf

E202 Strata noted in its review that Aurora has prioritised its cyclical vegetation work in the following order: [506]

E202.1 sub-transmission circuits;

E202.2 worst performing HV/LV feeders based on vegetation impact on reliability;

E202.3 long rural circuits; and

E202.4 all other circuits.

E203 We consider that this appears to be a reasonable prioritisation approach, as it targets the prevention of vegetation impact on sub-transmission lines first which have the potential to affect larger numbers of consumers, followed by HV/ LV feeders which have a track record of high vegetation related outages.

E204 We monitor Aurora's vegetation outages and note that there has been an overall decrease in vegetation related SAIDI and SAIFI levels since 2016, which suggests its recent vegetation strategy has been successful.

E205 Regarding why overhead lines are not undergrounded to reduce vegetation management costs; electricity lines companies are likely to consider total costs in an investment decision in considering both opex and capex, and not just vegetation management costs in isolation.

E206 On a per kilometre basis, the capital cost of a new cable could cost between four to six times more than a comparable overhead line. A range of factors contribute to this cost difference such as cable voltage and rating, the type of cable trenching required and whether land easements need to be paid.

E207 Where Aurora already has an existing overhead line that has service life remaining, it is difficult for us to make an accurate judgement about whether replacing an overhead line with an underground cable is economic.

E208 While we do not provide direction about how electricity lines companies design and operate their networks, in certain situations an electricity lines company may decide to underground an overhead line, or sections of an overhead line, for a variety of reasons. The reduction in vegetation management costs may be a contributing factor in that decision.

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[506] Aurora Energy "Asset Management Plan April 2020 - March 2030 - Aurora Energy's CPP Application" (12 June 2020), p.162, available at: https://comcom.govt.nz/__data/assets/pdf_file/0026/219158/Asset-Management-Plan-April-2020March-2030-Aurora-Energys-CPP-Application-12-June-2020.PDF

The efficiency of Aurora's vegetation unit rate

E209 We sought a range of additional information from Aurora about how it determined that RY18 was an efficient base year, how external benchmarking was carried out and vegetation maintenance efficiencies due to new contracting arrangements.[507]

E210 The Verifier concluded that the proposed unit rate based on RY18 expenditure appears inefficient when compared to other New Zealand electricity lines companies. We were interested to understand more about its vegetation base year, asking Aurora:

E210.1 how the base year value was built up (including unit rates and volumes where applicable), along with any relevant information on how these values were calculated/derived; and

E210.2 why Aurora selected RY18 for the vegetation maintenance base year while it used RY19 as the base year in its maintenance opex analysis.

E211 Aurora responded by providing a vegetation forecast memo from 19 May 2020 responding to the Verifier's draft conclusions that vegetation opex may not be efficient. In this report Aurora:

E211.1 notes that, based on staff experience at other NZ distributors, its internal review concluded that the vegetation, labour and plant rates included in the 2020 FSA were consistent with those seen in other like sized electricity distribution businesses;

E211.2 referred to benchmarking from KPMG which concluded that Aurora's vegetation management expenditure ratio, compared with other networks in the South Island, was below the average; and

E211.3 provided a comparison between its RY20 forecast and actual vegetation management expenditure that demonstrated vegetation management opex actuals were $5.59 million compared to the $5.58 million forecast.

E212 We requested details of how the benchmarking analysis was carried out by KPMG, but our request was refused. Accordingly, we have not placed weight on that analysis.

[507] RFI Q036 - Information supporting base year opex values, RFI Q050 - KPMG report on benchmarking of expenditure, RFI Q039 - Maintenance efficiencies due to new contracting arrangements and RFI Q036 Information supporting base year opex values

E213 We were also interested to understand more about Aurora's new contracting arrangements and how this would impact future vegetation management costs. We understood contracting arrangements for vegetation management were due for renewal in the next 2 years and wanted to know what allowance had been factored into the forecasts to reflect this initiative.[508]

E214 Aurora responded by stating that it had not built in specific assumptions into its forecast to cover new contracting arrangements but had included an allowance for some efficiency improvements after considering opposing factors such as increased competition versus potential upward cost pressures[509].

E215 In its Vegetation Management Strategy document Aurora confirm that at present Delta is the only provider of vegetation management services but that this is scheduled for review in RY23. Aurora state that "it may prove beneficial to engage further vegetation management contractors across the network if it might improve performance and reduce overall expenditure".[510]

E216 We consider that Aurora's vegetation management opex forecasting is problematic for three reasons, mainly that;

E216.1 it is reliant solely on Delta costs to forecast its expenditure out to RY26

E216.2 it hasn't adequately benchmarked with other NZ electricity lines companies, and

E216.3 the effect of market efficiencies from RY23 are evident but are not sufficiently captured by Aurora's proposed productivity improvements.

Strata analysis

E217 Strata considered that Aurora's approach to vegetation management is unlikely to estimate an efficient unit rate, because:

E217.1 Aurora has not sought to tender any of its vegetation management work to anyone other provider other than Delta, and it is unknown how efficient Delta is in delivering these services; and

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[508] RFI Q039 - Maintenance efficiencies due to new contracting arrangements

[509] Aurora notes that there are external factors that may impact its future vegetation management costs including; potential amendments to the Tree Regulations, the percentage of tree owners declaring 'no interest', the underlying labour rates for arborists, and traffic management requirements, particularly as vegetation management moves into urban areas.

[510] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020) - Vegetation Management Strategy AE-AS18-S s 3.5 p.9)

E217.2 Aurora's proposed single unit rate across the forecast period cannot accurately reflect first cut and cyclical cut activities.

E218 Strata compared Aurora's vegetation management costs against a cohort of distributors from several different perspectives, such as ICP density, similar overhead line lengths, and similar urban/rural lengths, for example.

E219 Strata tested this cohort against the following metrics and concluded for each that:

E219.1 for the cost of vegetation management per km of overhead circuit (see Figure E11) - Aurora is significantly above average over the past seven years and is forecast to remain so for the coming decade. Strata notes that there are four other electricity lines companies with similar costs, but three of these (Nelson Electricity, Wellington Electricity and Vector) have a high proportion of their overhead lines located in urban areas which is likely to increase costs associated with tree owner liaison and traffic management;[511]

Figure E10 Vegetation management costs ($/km of overhead lines, for years ending 31 March)

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Aurora Energy	350	637	990	1,431	987	1,296	1,306	1,203	1,232	1,184	881	878	870	861	821	852	850
Alpine Energy	30	34	52	207	216	126	162	232	236	236	236	236	236	236	236	236	236
Counties Power	376	408	475	453	423	422	439	580	645	657	670	684	697	711	724	739	753
MainPower NZ	180	185	236	208	226	111	127	177	229	248	248	248	248	248	248	248	248
Network Tasman	445	411	340	347	362	366	410	430	452	458	464	470	476	483	489	495	502
Orion NZ	-	464	555	581	623	575	712	726	736	794	736	736	736	736	736	736	736
OtagoNet	177	192	280	292	285	293	363	269	252	252	252	252	252	252	252	252	252
The Lines Company	175	196	218	230	232	198	272	300	349	300	300	300	301	301	301	301	302
Unison Networks	-	192	220	205	241	307	345	322	400	400	400	400	400	400	400	400	400
Wellington Electricity	-	723	683	880	811	1,118	911	918	1,043	1,043	1,043	1,043	1,043	1,043	1,043	1,043	1,043
Average	247	344	405	483	441	481	505	516	557	557	523	525	526	527	525	530	532
Av. excl. Aurora	154	312	340	378	380	391	416	439	482	488	483	486	488	490	492	495	497
Av. excl. Aurora & WE	230	260	297	315	326	300	354	380	412	418	413	416	418	421	423	426	429
Aurora cf. av. excl. Aurora	228%	204%	291%	378%	260%	332%	314%	274%	255%	243%	182%	181%	178%	176%	167%	172%	171%

Key: Actual costs
Forecast costs

E219.2 The percentage of an electricity lines company's overhead lines that can be trimmed given its vegetation expenditure budget, using Aurora's proposed unit rate (see Figure E12) – assuming Aurora's proposed unit rate, Wellington Electricity is the only distributor that would be able to trim a similar percentage of overhead lines as Aurora given its forecast vegetation management expenditure. Strata notes that distributors have highlighted the need for increased levels of trimming in their AMP, but to achieve this, these distributors would need to have materially lower unit rates than Aurora's proposed rate.

[511] The fourth Electricity lines company was Electra

Figure E11 Percentage of electricity lines company's overhead lines that can be trimmed using Aurora's proposed unit rate

	2018	2019	2020	2021	2022	2023	2024	2025	2026
Aurora Energy	1.3%	1.3%	1.2%	1.2%	1.2%	0.9%	0.9%	0.9%	0.9%
Alpine Energy	0.1%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%
Counties Power	0.4%	0.4%	0.6%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%
MainPower NZ	0.1%	0.1%	0.2%	0.2%	0.3%	0.3%	0.3%	0.3%	0.3%
Network Tasman	0.4%	0.4%	0.4%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
Orion NZ	0.6%	0.7%	0.7%	0.7%	0.8%	0.7%	0.7%	0.7%	0.7%
OtagoNet	0.3%	0.4%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%
The Lines Company	0.2%	0.3%	0.3%	0.4%	0.3%	0.3%	0.3%	0.3%	0.3%
Unison Networks	0.3%	0.3%	0.3%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%
Wellington Electricity	1.1%	0.9%	0.9%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%

Note: The 2020 overhead line length has been applied across all years.

E219.3 The per tree-unit cost (see Figure E13) – for Aurora this equated to between $1464-$1778 per tree compared with $70-$107 per tree for The Lines Company and Unison Networks (the only members of the cohort with information available for this type of comparison).

Figure E12 Per tree vegetation management unit cost

	2013	2014	2015	2016	2017	2018	2019	2020	2021
Aurora Energy	-	-	-	-	-	-	1,778	1,464	-
The Lines Company	-	-	-	-	-	-	-	-	98
Unison Networks	-	-	70	-	-	-	107	-	-

Note: Unison's 2019 unit cost assumes Unison wants to trim the same number of trees as in 2015.

E220 Strata also compared Aurora's vegetation management resourcing costs against Mainpower's[512] (scaled up for comparative purposes) and based on this comparison, estimated that an annual vegetation management opex cost of $3.5 million-$4 million appeared appropriate for Aurora's network, compared to its proposed approximate annual cost of $5.5 million.

E221 After evaluating the results from its different analyses, Strata considered that the results suggested an approximate 25% reduction to the proposed unit rate of $98,907 per km was appropriate. Strata considered that Aurora's vegetation management opex does not meet the expenditure objective, and should be reduced to $75,000 per km.

[512] Mainpower was selected by Strata because Strata identified Mainpower as one of the cohort of distributors most comparable with Aurora, and also because unlike the other members of the cohort Mainpower had comparable labour resource data available that could allow for a detailed comparison with Aurora.

Our view

E222 The Verifier did not suggest reductions to Aurora's vegetation management unit rate in its review despite identifying that Aurora unit rates appeared to be noticeably higher than that of other NZ electricity lines companies – about 56% above the trend line and 42% above the upper confidence bound.

E223 The Verifier considered that its benchmarking results were inconclusive because the scale of the difference between Aurora and the other electricity lines companies did not appear realistic (see Figure E14).[513]

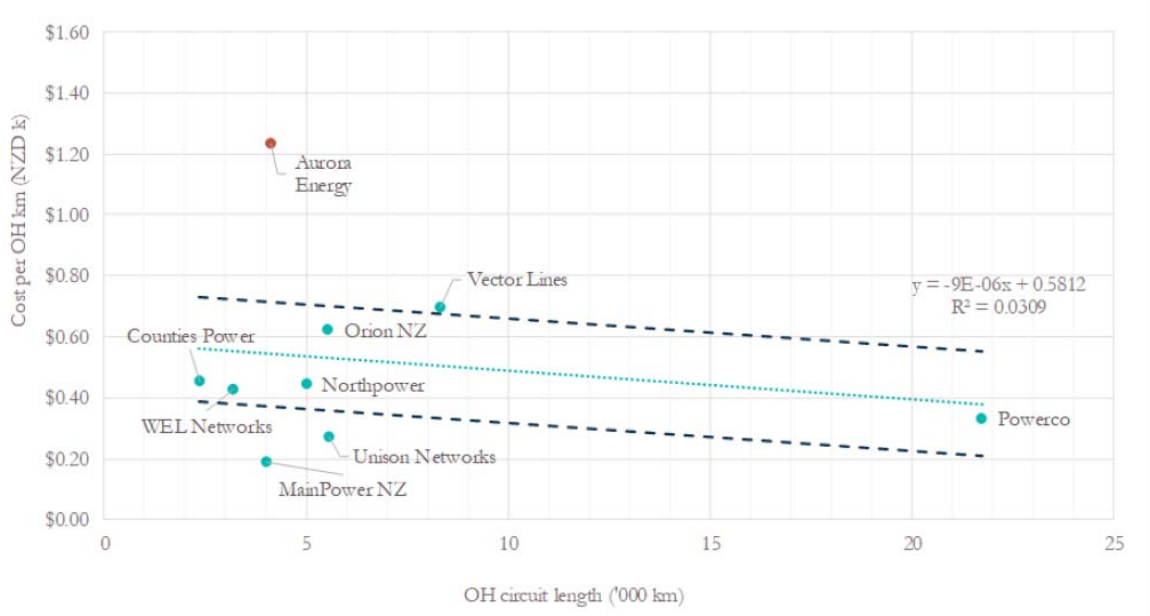
E224 The Verifier also undertook a similar benchmarking analysis of Aurora against Australian electricity lines companies and noted that in contrast to the NZ results Aurora's vegetation costs appeared consistent with these networks. However, the Verifier also noted care should be used in interpreting these results because the New Zealand comparison may be affected by factors not readily adjusted for using the data available from the Australian electricity lines companies.[514]

[513] Farrier Swier Consulting Pty Ltd and GHD Pty Ltd "Verification report - Aurora Energy CPP application" (8 June 2020), p. 305-7, available at: https://comcom.govt.nz/__data/assets/pdf_file/0028/218593/Farrier-Swier-Consulting-Pty-Ltd-and-GHD-Pty-Ltd-Aurora-Energys-CPP-application-Verification-report-8-June-2020.pdf

[514] Farrier Swier noted that vegetation management data is reported against different reporting obligations across the Australian and New Zealand jurisdictions and so the reported costs may not be comparable. Moreover, different operating environments may also make direct comparisons inappropriate unless these differences are adjusted for in some way.

Figure E13 RY15-19 Vegetation management per overhead circuit km versus overhead length

Figure C.31: RY15–RY19 vegetation management per overhead circuit km vs overhead circuit length ($000, $2020)



E225 We agree with Strata's conclusion that Aurora's approach to vegetation management is unlikely to estimate an efficient unit rate. Aurora has not sought to tender any of its vegetation management work and is using a base year estimate when work undertaken in the 2018 base year, that included a combination of first cut and cyclical cut activities.

E226 Strata's analysis utilised a range of metrics to test Aurora's vegetation cost efficiency against other electricity lines companies and suggests that Aurora's unit rate appears to be consistently higher than other electricity lines companies.

E227 We consider the Strata and Verifier benchmarking comparisons are informative but not definitive because they are limited by the fact that we do not know how many network route kilometres are cut each year, and none of the analysis comparators are especially close to Aurora across all the various overhead line lengths measures. Additionally, the Verifier's Australian benchmarking compares Aurora to networks under different vegetation management reporting obligations and operating environments.

E228 We consider the direct cost comparison analysis with Mainpower is the most compelling analysis because this bottom-up approach demonstrates that even with generous assumptions around crew size, administration and overhead costs, Aurora costs still appears significantly higher.

E229 We have agreed with Strata's recommended vegetation unit rate reduction to $75,000/per km.

Conclusions and draft decisions

E230 We have reviewed the CPP Application material and the Verifier's analysis of the vegetation management programme including Strata's analysis of the issues highlighted by the Verifier.

E231 The Verifier and Strata both identified that Aurora vegetation management unit rate appeared to be significantly higher than other electricity lines companies, and we note that Aurora has not market tested its unit rate by tendering the work out to other contractors.

E232 Delta is a related party and is contracted to be the sole provider of vegetation management services to Aurora until at least 2022, which we note may limit Aurora's ability in 2022 (the first year of the CPP) to reduce its vegetation unit rate.[515] However, we do not consider that Aurora's decision to contract solely with a related party and not market test its unit rate, should result in its customers being required to pay for expenditure levels above what is prudent and efficient.

E233 Strata's tested Aurora's vegetation management cost efficiency against other electricity lines companies using various benchmarking analyses, as well as direct cost comparisons. Against all these metrics, Aurora appears less efficient.

E234 We consider the direct cost comparison with Mainpower the most compelling analysis from Strata as it is based on detailed cost information provided by each Electricity lines company on its vegetation management expenditure, allowing for a more accurate and granular comparison.

E235 On the basis of the analysis performed we propose to approve $16.1 million in the vegetation management opex programme instead of the $21.2 million proposed over the five-year CPP period.

[515] We welcome further information from Aurora on any limitation on its ability to meet the vegetation management allowance proposed by the Commission, particularly in the early years of the CPP.

Maintenance opex

Background

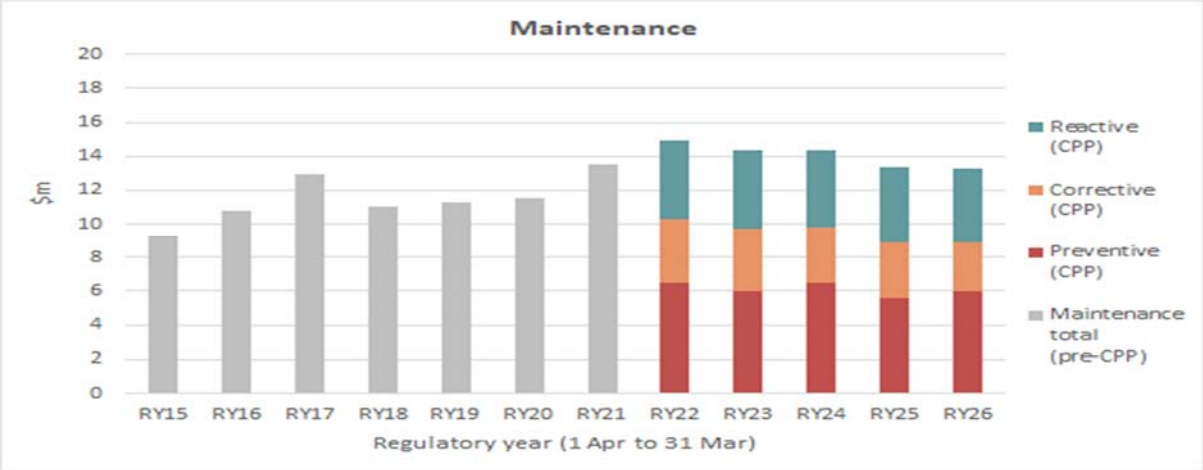
E236 Aurora is proposing to invest $70.43 million over the CPP period (see Figure E15) in its maintenance programme that comprises: [516]

E236.1 $22.8 million for reactive maintenance;

E236.2 $17.1 million for corrective maintenance;

E236.3 $30.5 million for preventive maintenance.

Figure E14 Maintenance expenditure between RY15 and RY26



E237 Aurora considers that this expenditure is necessary because:

E237.1 it addresses historical shortfalls in corrective maintenance of some asset types, together with addressing identified and expected defect backlogs;

E237.2 it addresses historical shortfalls in preventive maintenance of some asset types, which were neglected, either as maintenance that was not planned, or planned maintenance that was not completed; and will include enhanced inspections to gather good asset data, both nameplate and condition to inform future asset management activities; and

E237.3 it will allow Aurora to meet the proposed service standards and response times related to its reactive maintenance activities

[516] Farrier Swier Consulting Pty Ltd and GHD Pty Ltd "Verification report - Aurora Energy CPP application" (8 June 2020), Section C17, C18, and C19.

E238 Aurora notes that it has historically not completed enough preventive and corrective maintenance activities which has led to a need to increase expenditure in these programmes of work during the CPP period.

E239 Aurora's reactive maintenance expenditure is expected to decrease as overall asset condition begins to improve due to greater expenditure on renewals and other network opex areas.

What the Verifier said

E240 The Verifier's analysis concluded that the base corrective, reactive and preventive maintenance forecasts may have scope for potential reductions due to:[517]

E240.1 the benchmarking being inconclusive with regards to the efficiency of base year expenditure;

E240.2 efficiency improvements proposed by Aurora Energy appear modest; and

E240.3 cost reduction benefits from the new contractor arrangements will likely be realisable sooner than is reflected in the top-down efficiency improvements adopted by Aurora.

E241 The Verifier's analysis concluded that applying a network scale growth factor does not appear appropriate for reactive and corrective maintenance over the CPP period as such activities are driven more by fault rectification than growth in new assets.

E242 The Verifier's analysis also concluded that, for corrective maintenance, it agrees there will be more defects identified due to an increase in inspections from enhanced preventive maintenance expenditure, but it was not able to verify the nominal 10% allowance proposed by Aurora for additional defects identified.

E243 The Verifier identified some key issues that Aurora and we may wish to consider such as:

E243.1 whether it is appropriate for the remediation costs of the consumer pole population to be included within the regulated cost base;

E243.2 the appropriateness of applying a network growth factor to corrective and reactive maintenance;

E243.3 whether the proposed increase in defects requiring corrective maintenance is appropriate;

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[517] Farrier Swier Consulting Pty Ltd and GHD Pty Ltd "Verification report - Aurora Energy CPP application" (8 June 2020), Section C17, C18, and C19.

E243.4 whether RY19 is an efficient base year and that RY20 actual costs to assess the impact of the new FSA on maintenance costs should be reviewed; and

E243.5 whether the proposed top down efficiency improvements proposed by Aurora Energy are appropriate.

Issues Paper package submissions received related to maintenance

E244 Several submitters noted that Aurora had historically neglected maintenance leading to a backlog of maintenance work. Submitters also questioned the cost effectiveness of Aurora's maintenance work citing specific examples of inefficient work practices, and supported expenditure on maintenance activities to minimise the amount of administration and overhead costs.[518,519]

Our view of submissions

E245 We agree that Aurora has historically neglected maintenance work leading to a backlog of maintenance work, and this was noted by Aurora itself in its CPP proposal.

Aurora's consumer pole maintenance expenditure

RFI 24 - Consumer Poles

E246 The Verifier noted that Aurora has forecast inspecting and mitigating issues with approximately 4,000 consumer-owned poles by RY27, before handing ownership of these poles over to consumers as part of its Consumer Owned Poles Strategy.

E247 The Verifier identified that we may want to consider whether it is appropriate for the remediation costs of these poles to be included in the regulated cost base. Aurora note that a total of $6.5 million of corrective and preventive maintenance opex for this purpose is included in its CPP proposal.

E248 We were interested to understand how Aurora has accounted for, and proposes to account for, the costs associated with remediating consumer-owned poles, and the materiality of any of these costs. We asked Aurora to:

E248.1 provide us with its reasoning and its view of the statutory obligations surrounding Aurora's strategy to remediate consumer-owned poles that Aurora has identified as having safety issues;

E248.2 provide us with, for each year of the CPP and review periods, the capital and operating expenditure Aurora forecasts it will incur remediating consumer-owned poles;

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[518] 0479 "Submission on Aurora Energy's CPP Issues paper" (19 August 2020),

[519] Item 8 "Submission on Aurora Energy's CPP Issues paper" (27 August 2020).

E248.3 describe Aurora's policy on recovery of these costs from each owner of the consumer-owned poles, and describe the effectiveness of any such recovery policy; and

E248.4 explain whether Aurora has included any capex associated with consumer-owned poles in the Regulated Asset Base (RAB).

E249 Aurora responded by providing:

E249.1 a detailed legal analysis of its statutory obligations to remediate consumer-owned poles;

E249.2 the expenditure Aurora will incur remediating consumer-owned poles for each year of the CPP period;

E249.3 Aurora's policy on recovery of these costs from each owner of the consumer-owned poles, and the effectiveness of the recovery policy;

E249.4 confirmation that it had capitalised a very small number of consumer pole replacements undertaken in the past three years, since it was uncertain at the time whether its policy position would be to hand-over, or bring service lines into the Regulated Asset Base (RAB) by;

E249.4.1 electing not to hand pre-1984 service lines back to consumers (thereby retaining maintenance responsibility as described above); and

E249.4.2 agreeing a Point of Service (PoS) at the mains attachment to the dwelling/building etc., in accordance with s2(3)(d) of the Act.

Our view

E250 We consider that it is appropriate for consumer pole remediation opex costs to be included within the regulated cost base. We consider that Aurora has correctly interpreted and established its legal responsibility for the relevant poles under the Electricity Act 1992.

E251 Aurora's proposed approach to bringing the poles up to "a reasonable standard of maintenance and repair" entails having regard to the age of a service line and any poles (not an 'as new' standard) and the regulations under which the service line and any poles were constructed. Aurora must ensure that the service lines and poles are not unsafe. We consider this approach is reasonable in the circumstances.

E252 We consider that Aurora's general approach of incurring operational expenditure for inspecting, maintaining and handing over service lines, in accordance with the transitional provisions of s2(5) of the Act is consistent with the intent of the transitional arrangements under section 2(4) and (5) of the Electricity Act. As such it is appropriate that maintenance and responsibility for such service lines beyond the Point of Supply (PoS) shift to the consumer if the remedial and notification requirements under subsection (5) are met.

E253 We also note that the need for and timing of this work is supported by the Verifier's observations that the:[520]

> *timing for this initiative is being driven by a [2.5x] higher than average unassisted failure rate of consumer poles compared with the rest of the Aurora Energy pole population;*

E254 Further, the Verifier noted that Aurora's maintenance approach to consumer poles was prudent and in alignment GEIP because:

> *the proposed change from a largely reactive to a more proactive maintenance approach is prudent and will likely result in lower whole of life costs… the proposed asset maintenance strategies and initiatives for preventive, corrective and reactive maintenance are generally in line with GEIP*

Application of a growth factor to corrective and reactive maintenance

Strata's analysis

E255 Strata agreed with the Verifier's view that applying a scale growth factor to corrective maintenance over the CPP and review period is not appropriate because defective network assets rather than network growth are the key driver of corrective maintenance expenditure.

E256 Strata notes that defects are typically related to the age and/or condition of an asset, and that assets installed to cater for network growth (whether new or used):

E256.1 should be defect-free and in good condition when installed and for a reasonable period subsequently, and certainly for the duration of the CPP and review periods; and

E256.2 warranties are also likely to cover any early defects at or during commissioning.

E257 Based on this, Strata considered no network growth factor should be applied to corrective maintenance.

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[520] Farrier Swier Consulting Pty Ltd and GHD Pty Ltd "Verification report - Aurora Energy CPP application" (8 June 2020), Section C38 p.487.

E258 Strata agreed with Aurora's view that applying a scale growth factor to reactive maintenance over the CPP and review period is appropriate on the basis that more network assets are likely to result in more faults caused by external impacts such as vegetation, animals, third parties and storms.

E259 Strata did not agree with the size of the growth factor which Aurora had applied because our calculated growth factor applied by Aurora includes reactive maintenance opex undertaken in response to defects related to the age and/or condition of an asset.[521]

E260 Strata concluded the growth factor applied to reactive maintenance should be less than the growth factor we applied in the DPP3 analysis, as the age and condition defects are not related to growth.[522]

E261 Strata estimated that on average 30% of unplanned outages over the CPP period will be caused by equipment deterioration. Based on this estimate it proposed to apply a network growth factor that is 70% of the growth factor we applied in the DPP3 analysis.

Our view

E262 Our application of a network growth factor under a DPP does not imply that it is necessarily appropriate to apply a network growth factor under a CPP. Our approach to setting distributors' allowable revenues under the DPP process is simpler than the approach under the CPP process and includes a less detailed assessment of a distributor's costs and cost drivers.

E263 We agree with the views of the Verifier and Strata that it is not appropriate to apply a network growth factor to corrective maintenance because defective network assets rather than network growth are the key driver of corrective maintenance.

E264 We agree with Aurora and Strata that that applying a scaled network growth factor to reactive maintenance over the CPP and review period is appropriate on the basis that more network assets are likely to result in more faults caused by external impacts.

E265 We consider that the size of the network growth factor recommended by Strata is more appropriate because it allows for the fact that age and condition defects are not related to growth.

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[521] Commerce Commission, 'Opex projections model - EDB DPP3 final determination' (27 November 2019), network opex tab, row 26.

[522] Commerce Commission, 'Opex projections model - EDB DPP3 final determination' (27 November 2019), network opex tab, row 26..

E266 Following analysis our draft decision is that no network growth factor be applied to the proposed corrective maintenance opex forecast, and a network growth factor that is 70% of the DPP3 growth factor be applied to the proposed reactive maintenance opex forecast.

Proposed increase in defects requiring corrective maintenance

E267 In its CPP proposal Aurora expects annual expenditure on defects requiring corrective maintenance over the period RY22 to RY26 to be 10% higher than in RY19. This increase is expected due to a greater focus by Aurora on preventive maintenance, leading to more defects on Aurora's network being identified. In its review the Verifier was not able to verify the 10% uplift because Aurora had provided no support for it.[523]

E268 The Verifier noted that:[524]

> Even if the 24% uplift in preventive maintenance were to occur, it does not necessarily follow that there would be a 10% uplift in defects needing corrective maintenance. Enhanced inspections might simply identify more assets that do not have defects. Moreover, opportunities to prioritise defects, deferring those that are considered less of a priority, could offset the uplift in new defects. Aurora Energy advised that at present there is no formal backlog of defects maintained, and, other than for poles, defects are not graded.

Strata's analysis

E269 Strata noted that on a network with a relatively high proportion of older assets, it is logical that an increase in preventive maintenance can result in an increase in corrective maintenance.

E270 Strata reviewed Aurora's proposed additional preventive maintenance activities under the CPP and determined which of these activity areas could potentially affect its corrective maintenance expenditure. It concluded that:

E270.1 there should be no 'defects'-related uplift in corrective maintenance opex resulting from the 'Lidar survey' and 'Support consumer owned pole strategy' preventive maintenance activities;

E270.2 given Aurora's significant programmes of renewals capex (repex) in relation to poles, crossarms, sub-transmission and distribution conductors, it is likely there will be much lower corrective maintenance expenditure required in these areas, and that some of the defects identified in the preventive programme will be addressed as capex work; and

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[523] Farrier Swier Consulting Pty Ltd and GHD Pty Ltd "Verification report - Aurora Energy CPP application" (8 June 2020), p. 284.

[524] Farrier Swier Consulting Pty Ltd and GHD Pty Ltd "Verification report - Aurora Energy CPP application" (8 June 2020), p. 284.

E270.3 the remaining areas with the potential for increased corrective maintenance expenditure, relate to increased inspections of:

E270.3.1 pole-mounted air-break switches;

E270.3.2 low voltage enclosures;

E270.3.3 distribution surge arrestors;

E270.3.4 indoor switchgear;

E270.3.5 management of sulphur hexafluoride (SF6);

E270.3.6 electromechanical relays; and

E270.3.7 pole-mounted distribution transformers.

E271 However, the extent of this expenditure will depend on whether Aurora defers any capital replacements via corrective maintenance.

E272 Strata concluded that it was not convinced that Aurora's proposed step change in corrective maintenance opex, generated by additional defects identified by increased preventive maintenance, met the expenditure objective. Based on the analysis performed by Strata we agree with this conclusion.

E273 Strata recommended that Aurora's proposed step change in corrective maintenance opex generated by additional defects identified by increased preventive maintenance be reduced by 40% over the CPP period.

Our view

E274 We agree with the Verifier that Aurora has not demonstrated how its increase in preventive maintenance expenditure will result in more defects requiring 10% more corrective maintenance over the CPP period.

E275 However, we also agree with the Strata that, for a network with a relatively high proportion of older assets, it is logical that an increase in preventive maintenance can result in an increase in corrective maintenance.

E276 We consider that Strata's analysis identifying which preventive maintenance activities could potentially result in greater corrective maintenance expenditure, is a more refined and granular approach, and likely to result in a more accurate estimate than the 10% figure proposed by Aurora. We therefore agree with and accept Strata's recommendation.

Efficiency of RY19 maintenance opex base year

Aurora's benchmarking

E277 A key observation made by the Verifier was that the RY19 base year for the base step and trend maintenance opex forecasting may not be efficient, and we sought further information from Aurora about this.

E278 Aurora's provided benchmarking analysis results for network opex, in which it identified nine electricity lines companies as appropriate comparators and compared its RY19 and CPP forecast maintenance expenditure with these electricity lines company forecasts.

E279 The key benchmarking results were that Aurora's CPP forecast expenditure for:[525]

E279.1 scheduled maintenance (corrective plus preventive) on a per ICP basis, was below the average of the cohort, whereas on a per circuit length basis it was slightly above; in both cases it benchmarked reasonably; and

E279.2 for reactive maintenance opex, benchmarking suggested Aurora's forecast was above the industry cohort both on a per ICP and circuit length basis but that it appeared to benchmark reasonably.[526]

E280 We consider that the benchmarking results provided by Aurora demonstrate that it benchmarks reasonably against the electricity lines companies that it compared against although it is difficult to conclude that RY19 is an efficient base year to use for a base step and trend forecast.

Using RY20 Information Disclosure data

E281 The Verifiers recommended we review RY20 Information Disclosure data when it became available on 31 August 2020, to assess the impact of its new Field Services Agreements on maintenance costs.

E282 The comparison between RY20 actuals versus forecast for maintenance opex revealed that actual maintenance opex was higher across all three maintenance opex categories, particularly for preventive and corrective maintenance. The RY20 maintenance opex actuals totalled $13.4 million compared with a forecast of $11.5 million.

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[525] RFI Q036 - Information supporting base year opex values, RFI Q037 - DPP allowance estimates in RY2020 $ constant, RFI Q038 - Delivery processes - tracking and quality of delivery, RFI Q039 - Maintenance efficiencies due to new contracting arrangements and RFI Q040 - Preliminary assessment of proposal-information supporting RY2020 opex values.

[526] It is interesting to note that Aurora used ICP and circuit length benchmarking to decide RY19 was a reasonably efficient base year but that it used complicated totex ratios to benchmark SONS opex.

E283 Aurora noted that the RY20 results suggested that its CPP forecast may in fact be too low to adequately deliver its preventive and corrective maintenance programme without further process improvements and productivity gains.

Strata's analysis

E284 Strata examined whether Aurora's maintenance opex RY19 base year value used in the base step and trend should be adjusted or not, by reviewing Aurora's actual RY20 maintenance expenditure.

E285 Strata identified that Aurora's RY19 maintenance opex was consistent with its historical opex levels and could be considered an appropriate base year for base step and trend forecast modelling.

E286 Strata undertook benchmarking analysis selecting a cohort based on customer density (ICP/km) and concluded that its results were consistent with Aurora's and the Verifier's. Strata noted that when all maintenance opex is combined, Aurora was above the average of its selected cohort but not materially so.

E287 Strata considered that it is reasonable to expect Aurora's RY19 network maintenance expenditure would be slightly above the average of its industry peers because Aurora had, over a number of years, pulled back on its replacement and renewal capital expenditure (capex), despite the advanced age of large parts of Aurora's network, particularly in the Dunedin network.

E288 Strata noted that Aurora's RY20 maintenance opex is a reasonably material (11.4%) increase over RY19, and that this increase, coupled with its view that Aurora's network maintenance will be slightly high, indicates that the RY19 network maintenance opex is more likely to be efficient than inefficient.

E289 Strata considers that, on balance, RY19 maintenance opex provides an appropriate base year for base step and trend forecasting. Strata recommends that the RY19 base year for preventive, corrective and reactive maintenance base step and trend forecasting remain unchanged from that proposed by Aurora in its CPP proposal.

Our view

E290 We note that the expenditure levels proposed by Aurora across its maintenance programmes of work are supported by both the Verifier and Strata.

E291 We consider that Strata’s and the Verifier’s approaches to benchmarking the total maintenance opex, rather than at a category level, is appropriate because it removes the potential for results to be affected by variances in how electricity lines companies categorise different maintenance activities.

E292 We agree with Strata's observations that:

E292.1 it is reasonable to expect Aurora's maintenance expenditure would be above the average of its industry peers because of historic underinvestment in its network; and

E292.2 that Aurora's proposed RY19 base year is consistent with Aurora's historical network maintenance opex levels.

E293 We also note although the opex programme cost efficiencies are unlikely to have been fully realised due to the ongoing reliance on Delta, and that Aurora appears to have followed a reasonably robust process to select its service providers and create new FSA arrangements in order to make an increasing share of its maintenance work contestable. The FSA arrangements and plans are fully explored in the Aurora CPP capex analysis in Attachment D.

E294 Based on these factors we consider that the RY19 base year for preventive, corrective and reactive maintenance base step and trend forecast modelling should remain unchanged.

Conclusions and draft decisions

E295 We have reviewed the CPP Application material and the Verifiers' analysis of the maintenance programmes of work.

E296 In line with the Verifier's recommendation, we have undertaken further investigations of whether the remediation costs of the consumer pole population should be included within the regulated cost base, whether the proposed increase in defects requiring corrective maintenance is appropriate, whether a network growth factor should be applied to maintenance opex, and whether RY19 maintenance opex was a sufficiently efficient base year for base step and trend forecast modelling. We engaged Strata to carry out the base year and network growth factor investigations.

E297 We consider that it is appropriate for the remediation opex costs of the consumer pole population to be included within the regulated cost base. This is based on our view that Aurora has correctly interpreted and established its legal responsibility to remediate consumer poles under the Electricity Act 1992.

E298 We agree with the Strata conclusions that:

E298.1 it is not appropriate to apply a network growth factor to corrective maintenance, but it is appropriate to apply to reactive maintenance at reduced levels.

E298.2 step change in corrective maintenance opex generated by additional defects identified by increased preventive maintenance was not reasonable and should be reduced by 40%.

E298.3 the RY19 base year for preventive; corrective and reactive maintenance base step and trend forecast modelling is likely to be more efficient than inefficient and should remain unchanged

E299 Based upon the analysis undertaken, our draft decision is to accept that:

E299.1 $22.5 million of the proposed $22.8 million for reactive maintenance;

E299.2 $16.4 million of the proposed $17.1 million for corrective maintenance; and

E299.3 $30.5 million of the proposed $30.5 million for preventive maintenance over the CPP period is prudent and efficient and likely to meet the expenditure objective.

E300 We have not taken the analysis of top-down efficiency adjustments further and intend that the IRIS mechanism will reveal further opex efficiencies over the CPP period.

Other opex - Premises, Plant & Insurance, Governance and Administration

Background

E301 Over the CPP period Aurora is proposing to spend: [527]

E301.1 $15.6 million for Governance and Administration (see Figure E.16); and

E301.2 $5.1 million for Plant and Premises (see Figure E.17);

[527] Aurora Energy "Asset Management Plan April 2020 - March 2030 - Aurora Energy's CPP Application" (12 June 2020), I.7 & I.8, available at: https://comcom.govt.nz/__data/assets/pdf_file/0026/219158/Asset-Management-Plan-April-2020March-2030-Aurora-Energys-CPP-Application-12-June-2020.PDF

Figure E15 Governance and Administration expenditure between RY15 and RY26

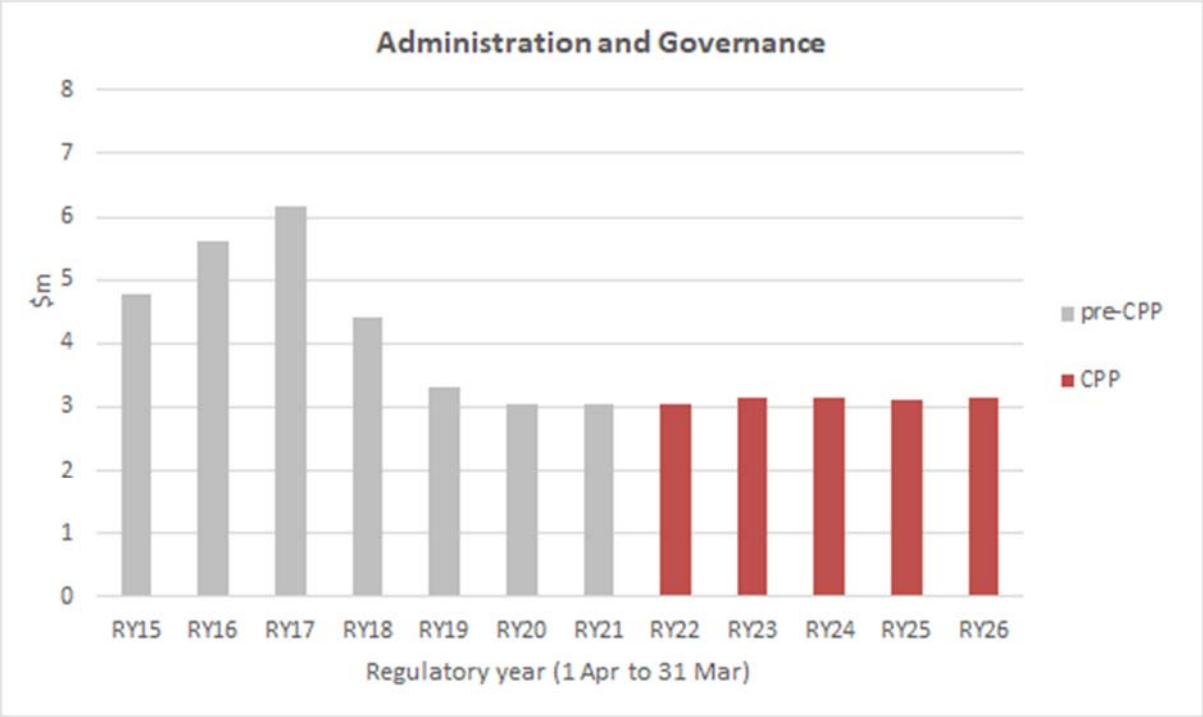
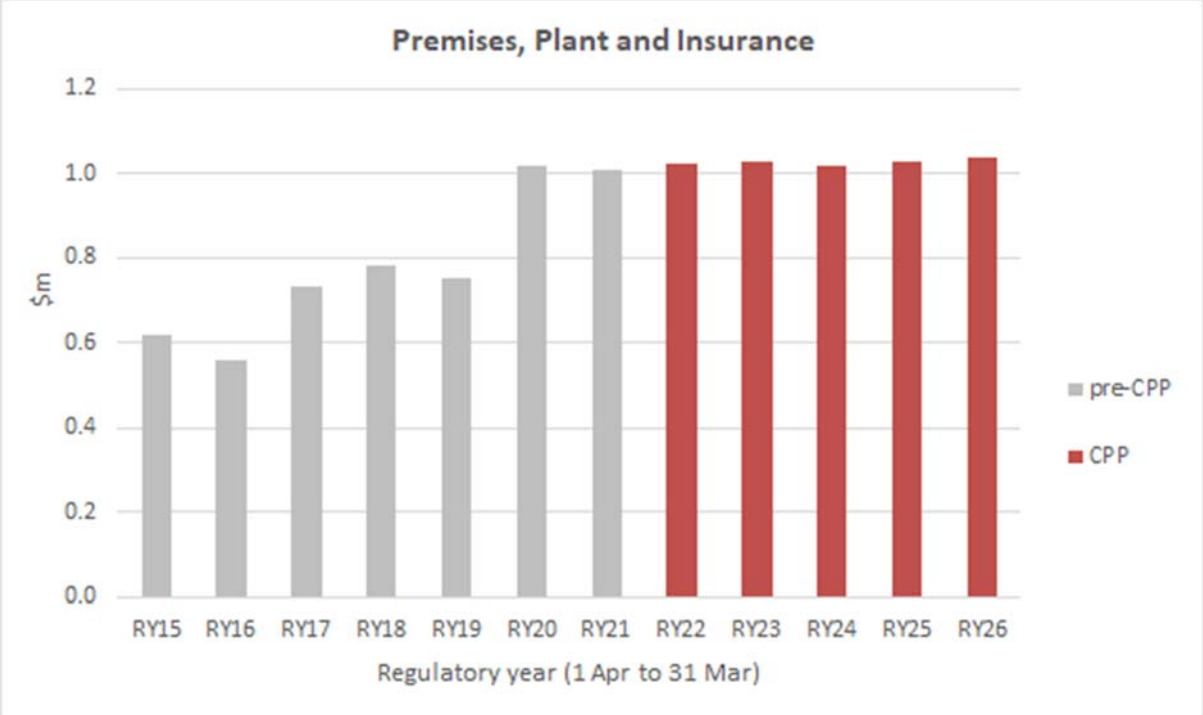


Figure E16 Plant and Premises RY15 and RY26



E302 Aurora considers that this expenditure is necessary:

E302.1 for premise and plant services to support its (increasing) accommodation needs based on forecast staff levels; and

E302.2 for governance and administration to support the costs relating to its board of directors, audit and assurance programmes, legal fees and consumables.

E303 Historically Aurora paid an annual management fee to Delta for the provision of premise and plant services and the corporate services relating to governance and administration.

E304 Aurora's premise and plant services forecast includes an increase in lease costs to accommodate increased staff levels and insurance premiums, while the forecast governance and administration expenditure is broadly consistent with its actual RY19 costs.

E305 Aurora's notes that for premise and plant services that:[528]

E305.1 in reviewing its accommodation and equipment levels based on increased staff numbers it identified a need for further investment, and in order for its staff to be accommodated and to able to work in an efficient and prudent manner it will invest in its fit out before the CPP period begins; and

E305.2 during the forecast period it expects equipment investments will be consistent with historical levels and we continue to replace and upgrade equipment on a steady state basis.

E306 Aurora's notes that its governance and administration forecast expenditure is broadly consistent with its actual RY19 costs.

E307 The Verifier did not review the premise and plant services and governance and administration expenditure forecasts, so we engaged Strata to provide a top-down view to test reasonableness.[529]

Additional information requested - unreviewed opex supporting information

E308 An RFI was prepared requesting Aurora to provide guidance on where applicable expenditure, policies and models can be located, and any examples of where prioritisation has been applied within the unreviewed opex categories.

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[528] Aurora Energy "Asset Management Plan April 2020 - March 2030 - Aurora Energy's CPP Application" (12 June 2020), I.7 & I.8, available at: https://comcom.govt.nz/__data/assets/pdf_file/0026/219158/Asset-Management-Plan-April-2020March-2030-Aurora-Energys-CPP-Application-12-June-2020.PDF

[529] Farrier Swier Consulting Pty Ltd and GHD Pty Ltd "Verification report - Aurora Energy CPP application" (8 June 2020), Table B.2: Assessment of projects and programs.

E309 Aurora responded noting that the expenditure in these programmes of work is considered non-discretionary spend. Aurora also noted that the expenditure followed the same internal challenge and review process as its verified programmes of work, in that its forecasts were tested and reviewed by executive management and the Board. The forecasts were moderated based on feedback and discussion.[530]

E310 A follow up request for further information was made following Aurora's response to RFI Q046 - Unverified opex supporting information, regarding Aurora's planned office asking:

E310.1 Does Aurora intend to move office premises in any of Dunedin, Cromwell and Frankton in order to have all staff located in the same office at each location?

E310.2 Does Aurora intend to change the grade of offices its leases?

E310.3 Does Aurora intend to lease office space that is additional to that needed for 156 staff, to cater for further increases in staff numbers beyond the end of the five-year review period?

E310.4 For the Governance and administration programme of work, we asked for a breakdown of the $2.5 million annual expenditure after excluding directors' fees and audit fees.

E311 Aurora responded that:[531]

E311.1 it plans to move to more functional premises and will mean that all staff in each area (Dunedin and Cromwell) will be in the same office. This is a more productive work environment for staff, with improved facilities in Dunedin for business continuity and emergency response; and

E311.2 as an alternative to leasing additional office premises, if it determines it is more efficient to build its own office premises it would envisage making this case when it submits its next CPP proposal.

E312 Aurora also provided a table with a breakdown of its annual Governance and Administration expenditure.

Strata analysis

E313 Strata carried out the following high-level test of reasonableness for each of the unreviewed opex programmes of work, testing:

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[530] RFI Q046 - Unverified opex supporting information

[531] RFI Q059 - Reconciliation of FTEs in transfer of functions from Delta to Aurora (follow up to RFI Q047)

E313.1 the reasonableness of the expenditure programme;

E313.2 the reasonableness of the policies that underpin the expenditure programme;

E313.3 whether the policies underpinning the expenditure programme have been applied appropriately;

E313.4 the reasonableness of any models used to generate the forecasts and justify the expenditure programme; and

E313.5 whether any prioritisation has been applied or should be applied.

Premises and plant

E314 In relation to expenditure on premises and plant, Strata considered that:

E314.1 the expenditure program and the policies supporting the program were reasonable, but could not confirm whether the policies have been applied appropriately;

E314.2 the models used to generate the proposed opex for the premises and plant expenditure programme are reasonable; and

E314.3 Aurora appears not to have applied any prioritisation to this expenditure programme. Strata queried whether Aurora could have undertaken some minor prioritisation.

E315 Strata concluded that based on its review of Aurora's proposed base year opex in the premises and plant expenditure programme, it recommends we approve the proposed expenditure. We agree with and accept the Strata recommendations.

Governance and Administration

E316 In relation to expenditure on government and administration expenditure, Strata considered that Aurora's:

E316.1 expenditure program and the policies supporting the program were reasonable, but it could not confirm whether the policies had been applied appropriately due to insufficient information; and

E316.2 models used to generate the proposed opex for the governance and administration expenditure programme of work could not be confirmed to be reasonable, based on the documentation available.

E317 Strata considered Aurora should further reduce the amount of legal costs in its base year, to reflect efficiency benefits from bringing in-house a material amount of its legal work. Currently, Aurora has no legal advisor or corporate lawyer on its staff.

E318 Strata also concluded that Aurora should not be charging consumers for service failure payments and queried whether Aurora's annual allowance of $0.5 million in communications costs for RY19 include some one-off costs associated with Aurora's CPP application.

E319 Based on its review of Aurora's proposed base year opex in the governance and administration expenditure programme of work, Strata recommended the base year amount of $2.9 million be reduced by 15%. The 15% reduction included:

E319.1 removal of the $231,000 of service failure payments; and

E319.2 removal of $200,000 of legal fees—which assumes a corporate counsel could be employed for $160,000 who would be able to do approximately two thirds of the work currently outsourced by Aurora.[532]

E320 To the extent that an in-house corporate counsel may generate these savings, Strata considers there should be an opportunity to realise savings in the $500,000 forecast for customer communications costs, to achieve the 15% saving.

E321 We agree with Strata that Aurora may be able to further reduce the amount of legal costs in its base year, to reflect efficiency benefits from bringing in-house a material amount of its legal work given that regulatory legal work does not materially change from year to year and is not highly specialised. We also agree Aurora may also be able to realise savings related to its customer communication costs where one-off costs associated with Aurora's CPP application have been included. [533]

E322 However, we do not agree with Strata that the expenditure related to service failure payments should be removed and are allowing for these to continue under Aurora's existing consumer compensation scheme.

E323 We consider a compensation scheme provided by an efficient and prudent network operator will inevitably require payments for most types of measures because over-investment would be required to avoid any payments. We have therefore not reduced Aurora's allowance by the $231,000 related to service failure payments.

E324 The net effect of these adjustments is an approximate 7% reduction in Aurora's allowance for its governance and administration programme of work.

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[532] Aurora's 2019 base year legal costs are $540k

[533] We welcome further information from Aurora regarding our proposed expenditure allowance reductions related to legal fees and customer communication costs.

Conclusions and draft decisions

E325 We have reviewed the CPP Application material and Strata's analysis of the premise and plant services and governance and administration expenditure forecasts.

E326 Plant and premises expenditure is increasing over the CPP relative to historical costs and is being driven by higher expenditure to accommodate a proposed larger workforce, and bring staff located in Dunedin and Cromwell into the same office at each location. We consider these are reasonable drivers to justify higher expenditure levels.

E327 We also note the move to centralised and more functional premises should result in a more a productive work environment, with improved facilities for business continuity and emergency response. We therefore agree with Strata's recommendations to approve Aurora's proposed expenditure in this programme of work.

E328 Aurora's forecast governance and administration expenditure is broadly consistent with its actual RY19 costs. However, as noted we anticipate further reductions may be possible in regard to its expenditure on legal fees and customer communication costs.

E329 Based upon the analysis undertaken, our draft decision is to accept that:

E329.1 $5.1 million of the proposed $5.1 million for Plant, Premises and Insurance; and

E329.2 $14.5 million of the proposed $15.6 million for Governance and Administration corrective maintenance over the CPP period is prudent and efficient and likely to meet the expenditure objective.

Attachment F Regulatory expenditure incentives

Purpose of this Attachment

F1 The purpose of this Attachment is to outline the outcomes of applying the incremental rolling incentive scheme (or IRIS) for opex as well as the capex incentive mechanism for Aurora. We provide an overview of how the incentive mechanisms for opex and capex operate and are applied when transitioning onto a customised price-path (CPP), and the regulatory incentives that will apply to Aurora during its CPP.

F2 We show how the opex and capex incentive amounts are carried forward into the CPP period, which feed into the revenue that Aurora can earn during its CPP as discussed in Attachment H. The expenditure incentive amounts also feed into our approach to smoothing revenue for Aurora as explained in Attachment G.

F3 Note that the application of the expenditure incentive mechanisms is not part of our CPP decisions but rather the outcomes of applying the input methodologies (IMs) for Aurora's transition to a CPP. However, we may vary the rules of the incentive mechanism with Aurora's agreement. Aurora proposed that we vary how the opex IRIS amount are spread for consumers, but our draft decision is not to accept this proposal as discussed in paragraphs F43 to F48.

F4 Also note that all monetary amounts discussed are in 2020 present value terms unless stated otherwise.

Summary of key outcomes

F5 The key outcomes relating to expenditure incentives explained in this Attachment include:[534]

F5.1 for opex spend above its allowance during DPP2 and the one year of DPP3 prior to the CPP Aurora has a net incentive amount of approximately negative $25 million (in 2020 present value terms) - this means Aurora retains approximately 33% of the overspend amount (this proportion would be lower if we assume that some of the overspends are permanent and recurring into the future);

F5.2 for capex spend against its allowance during DPP2 Aurora has a net incentive amount of approximately negative $18.5 million - this means a retention rate of 15% of the overspend amount;

F5.3 our draft decision (as outlined in Attachment H) is to reject Aurora's suggestion to smooth the significant opex IRIS adjustment terms (applied from the second year of the CPP) in favour of an aggregate revenue smoothing mechanism to avoid price shocks for consumers; and

F5.4 the incentive rates applying during the CPP will be:

F5.4.1 for capex - 23.5% for the first four years of the CPP and the fifth year will be determined in line with our DPP4 decisions;

F5.4.2 for opex – approximately 23.5% if Aurora transitions from its CPP onto a DPP (and likely lower if it transitions onto a subsequent CPP due to the adjustment terms required when transitioning onto a CPP).

[534] We note that our opex and capex incentive mechanisms are fundamentally present value concepts where savings and overspends are recovered over time. This Attachment applies a present value approach to explain the regulatory incentive amounts that will accrue during the CPP regulatory period (without smoothing). The executive summary converts these to the estimated regulatory incentive amounts to be consistent with the nominal $62m opex and $112m capex overspends that accrued from the DPP2 regulatory period. This is done by reversing out Aurora's time value of money (it's WACC) as well as excluding the wash-up component of the capex incentive mechanism. Opex incentive amounts in this attachment also include the first year opex in DPP3 as it is required to determine the incentives applicable to the CPP.

Incremental rolling incentive scheme (IRIS) for opex

Background

F6 Our regulatory regime provides regulated suppliers with incentives to reduce costs which benefit consumers through lower prices when revenues are reset. This is done through the IRIS mechanism for opex spend. The purpose of the IRIS mechanism is to provide suppliers that are subject to price-quality regulation with a consistent incentive to make efficiency savings and retain the benefits of these savings (or bear the cost of overspends).

F7 Implementing the IRIS scheme for opex spend has a number of benefits over a regulatory regime with no rolling incentive mechanism:

F7.1 IRIS can provide a constant incentive rate for suppliers to make opex efficiency savings over time as opposed to facing the natural incentive under price-quality regulation;[535]

F7.2 IRIS removes the incentive to defer making cost savings arising from the differing natural incentive rates during a period;[536]

F7.3 the mechanism allows us to control the incentives faced by suppliers for making opex cost savings (and control the incentive for efficiency of opex in relation to the incentive to make cost savings for capex); and

F7.4 in the absence of a rolling mechanism there is an incentive to increase expenditure in the year that the forecast allowance for the following period will be based upon (the base year).[537]

F8 These outcomes benefit consumers as the supplier does not have the incentive to time or defer potential cost savings into the future, or inflate expenditure in the base year, thereby benefiting consumers as this will flow through to lower prices sooner.

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[535] The 'natural incentive' for a price-quality regulated firm to make savings is greater at the start of the regulatory period than it is at the end of period. This is because as the regulatory period progresses there is less time to retain savings before a reset where the cost savings will be reflected in the allowance for the following period. This leads to a differing incentive for each year of a given regulatory period.

[536] If suppliers face the natural incentive rate that reduces over the period, there may be incentives to defer cost savings until the following period where it can retain the savings for a longer period of time.

[537] This is because we generally set future forecasts based on a 'base year' in the current period and project this amount forward with a trend - so if suppliers increase expenditure in this year it will receive a higher allowance for the following period.

F9 The IRIS mechanism works by sharing a proportion of savings or overspends between the regulated supplier and consumers over time. Under a default price-path (DPP), the mechanism provides a constant incentive rate by ensuring the supplier retains savings or overspends for a consistent time period (five years) before being passed on to consumers.

F10 However, when transitioning onto a CPP, the direct link between periods is broken and so the IRIS input methodologies (IMs) set out adjustments that must be made to ensure that there are no perverse incentives on the supplier.[538]

F11 Aurora's transition from a DPP to a CPP results in IRIS adjustments that apply during the CPP period, resulting from expenditure relative to its opex allowance in the preceding DPP periods (DPP2 and one-year DPP3).[539]

Approach for opex incentives when transitioning from a DPP to a CPP

F12 The general approach for calculating regulatory incentive recoverable costs is the same for the transition to a CPP as it is for distributors on the DPP. In particular:

F12.1 the savings or overspends made during a given year of the DPP are carried forward for five years; and

F12.2 the amounts carried forward into each year of the subsequent period (the CPP period) are added together to determine the recoverable cost term for a given disclosure year.[540]

F13 In the second year of the CPP period, a number of one-off adjustments are made in addition to the carry forward amounts from savings/overspends made prior to the CPP. These 'adjustment terms' are discussed further in this Attachment.

[538] We say that the link is broken because the expenditure that we allow for a CPP is not necessarily linked to the previous regulatory period like transitioning from one DPP to another.

[539] Note that guidance on how we treat IRIS for a CPP comes from our 'Further amendments to IRIS for electricity distributors' paper published in 2015. See Commerce Commission "Final reasons paper – Further amendments to IRIS for electricity distributors" (25 November 2015).

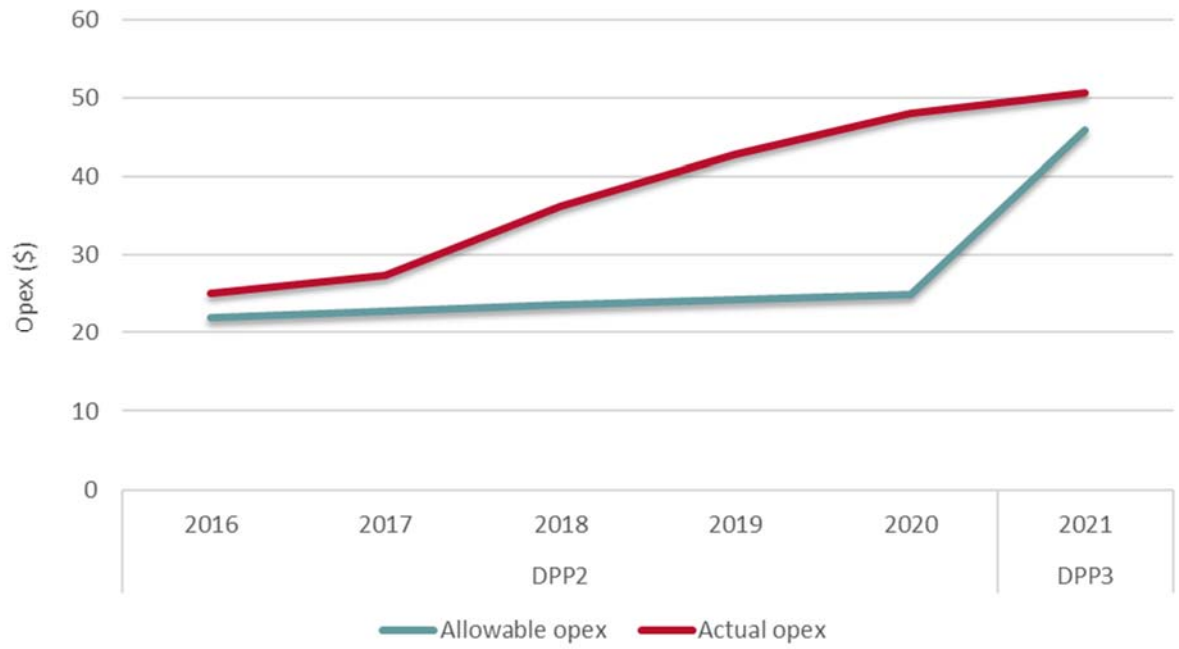
[540] Note that the amounts carried forward into the CPP period are automatic based on the IMs and do not require judgement as to the amount to be carried forward.

F14 In our 2015 decision on setting expenditure incentives for suppliers on a CPP, we identified six generic scenarios that may occur based on the type of price-path transition (ie, is the supplier transitioning from a DPP/CPP to a CPP) and the length of the regulatory periods.[541] Each of these scenarios has different adjustment terms to ensure the intended sharing of savings and overspends.

Outcomes of regulatory opex incentives

F15 Aurora has significantly overspent its opex allowance for DPP2 and the one year of DPP3 leading up to its CPP from 2021-2022 onwards. Note that the opex spend for the one year of DPP3 in 2020-2021 is still a forecast opex amount. The total amount Aurora has overspent compared to allowances over DPP2 and the one year of DPP3 is approximately $74 million (in present value terms as at 2020). Figure F1 below displays Aurora's opex spend against its allowance during DPP2 and the one year of DPP3.

Figure F1 Aurora opex spend (nominal $)



[541] For the illustrative model that we published in 2015, see: https://comcom.govt.nz/regulated-industries/input-methodologies/electricity-distribution-ims/other-past-amendments-and-clarifications2?target=documents&root=62637.

F16 Overall, the total opex IRIS amount (present valued as at 2020) from Aurora's expenditure against its allowance during DPP2, and expected expenditure in the first year of DPP3, is approximately a $25 million negative revenue adjustment for Aurora. We break this amount down into the different incentive components that make up the net incentive amount in Table F1 below.

Table F1 Opex IRIS outcomes (PV 2020)

Components	NPV ($m)
Overspends during DPP2 and DPP3	-74.1
IRIS carry-forward amounts[542]	-49.7
IRIS adjustment terms	99.2
Net incentive amount retained by Aurora	-24.6

F17 The net opex incentive amount implies a retention rate of approximately 33% for Aurora's opex overspends during DPP2 and forecast spend for the one year of DPP3.[543] That is, Aurora bears approximately 33% of the amount of the overspend amount. This retention rate is based on the assumption that none of the overspends during DPP2 were permanent.[544] If we consider that there were permanent overspends during the period, the present value of these overspends over the long-term (beyond first year of DPP3) will be higher.[545]

[542] The carry-forward amounts are the IRIS amounts that are carried forward from expenditure overspends in DPP2 (and the one year of DPP3) through the CPP period.

[543] The 33% can be attributed to the WACC values for DPP2 and DPP3 and therefore the derived retention rates for DPP2 and DPP3 being different. For DPP2 the opex retention factor is approximately 34% (based on a 67th percentile vanilla WACC of 7.19%) and for DPP3 the opex retention factor is approximately 24% (based on a 67th percentile vanilla WACC of 4.57%).

[544] If we assume that all overspends during DPP2 are permanent in nature, then the NPV of the overspends over time would be approximately $400 million. To retain the intended retention factor of 33% (based on the mix of DPP2 and DPP3 retention factors), the baseline adjustment term required to produce this would need to be approximately $8 million (as opposed to the current $116 million through the baseline adjustment). This is simply intended to present a materiality range rather than any recommendations.

[545] The IRIS mechanism treats cost under- or overspends as temporary or permanent depending on how long they are maintained. A temporary saving is assumed to last only in the year that it is incurred, while a permanent saving is assuming to continue into perpetuity. Permanent savings or overspends get retained for a longer period of time compared with temporary savings or overspends.

F18 Consequently, with some level of permanent overspends continuing into the future, the actual retention of the overspend would be below the 33% (ie, Aurora bears less as a proportion). This is due to the adjustment terms when transitioning onto the CPP (the baseline adjustment term effectively reverses out some of the permanent overspends).[546]

F19 The IRIS adjustment terms were introduced to ensure that any savings or overspends are appropriately shared between the supplier and consumers, consistent with the intention of the IRIS scheme.[547] The multiple one-off adjustment terms are where the CPP approach differs from the DPP approach.[548]

F20 For clarity, the relevant one-off IRIS adjustment terms applied in year two of Aurora's CPP are outlined in Table F2 below.

Table F2 IRIS adjustment terms (PV 2020)

Adjustment term	NPV ($m)
Base year adjustment term (cl 3.3.5)	-13.7
Baseline adjustment term (cl 3.3.7)	116.04
One-year adjustment term 1 (cl 3.3.8)	-3.1
One-year adjustment term 2 (cl 3.3.8)	-16.1
One-year adjustment term 3 (cl 3.3.8)	16.2
Total opex IRIS adjustment terms applied in Year two of the CPP	99.2

The baseline adjustment term

F21 The most significant adjustment to the opex incentive amount is the 'baseline adjustment term'.[549] The baseline adjustment term aims to remove potentially perverse incentives to avoid or delay applying for a CPP when the expenditure is needed for the network (which may be the case if there were no adjustment to the IRIS mechanism).[550]

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[546] This is only the case when a distributor transitions to a CPP. Under a DPP the retention of both temporary and permanent savings/overspends remains constant over the period.

[547] For further information on why these are required, see Commerce Commission "Final reasons paper – Further amendments to IRIS for electricity distributors" (25 November 2015).

[548] In a DPP, only one of the adjustment terms is applied (the base year adjustment), none of the other terms are required.

[549] Note that the baseline adjustment term for the transition to a CPP is not calculated in the same way as for Transpower's IPP which is subject to a degree of judgement and interpretation (the CPP baseline adjustment term has a set formula).

[550] The approach for transitioning to a CPP ensures that temporary savings in the penultimate year are not excessively rewarded or penalised. If a supplier has been exposed to significant temporary costs (eg, a

F22 In the absence of this adjustment any temporary savings/overspends in the penultimate year would be inaccurately rewarded or penalised as if they were permanent savings/overspends. Therefore, the supplier would be over-rewarded or over-penalised for the temporary savings/overspends incurred.[551]

F23 We also previously considered that this approach keeps the incentive for temporary savings consistent across regulatory periods, so that there are not incentives for expenditure to be delayed in order to gain from diverse incentive rates.[552]

F24 The baseline adjustment term results in a positive recoverable amount for Aurora during the CPP period. This may appear counterintuitive considering that Aurora has overspent its allowance during DPP2 and the one year of DPP3. As previously noted, this was decided to remove potentially perverse incentives when moving onto a CPP. During the DPP periods prior to the CPP, Aurora will have borne a greater proportion of overspends than was intended under our IMs,[553] and so is able to recover some of this expenditure back from consumers during the CPP period.

F25 When a supplier is transitioning from a DPP to a CPP, it is likely to be incurring significant additional costs required to develop and/or rebuild the network. Therefore, in the DPP(s) prior to a CPP the supplier will also likely to be ramping up expenditure in anticipation of the new baseline expenditure for the CPP.

F26 Without a baseline adjustment term, suppliers may be incentivised to postpone necessary maintenance and network development until the CPP period where they will be able to recover these necessary costs. This concern around potentially deferring expenditure is especially important given the safety concerns and need for significant investment on Aurora's network.

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major storm) it will be expecting positive adjustments under the IRIS that applies under a DPP. If all IRIS adjustments were removed when a distributor moved onto a CPP, the distributor may be reluctant to apply for a CPP in the first place. This is because those positive adjustments would be removed, and the supplier would be exposed to the full costs of the temporary event.

551 For example, as Powerco noted in its submission to our 2015 IRIS approach decisions paper, a $1 temporary efficiency results in a $0.34 benefit to the distributor, whereas a $1 permanent efficiency results in a benefit of $5.08 (given a WACC of 7.19%). See Powerco Limited "Submission - Proposed approach to further amendments to incremental rolling incentive scheme (IRIS) for electricity distributors" (March 2015), p. 2-3. This demonstrates the potential level of materiality of treating temporary savings as permanent.

552 Commerce Commission “Final reasons paper – Further amendments to IRIS for electricity distributors” (25 November 2015), para 3.23.

553 Both through the overspends actually accrued during the DPPs and the carry forward amounts rolled into the CPP period.

F27 Aurora has deliberately overspent its allowance in advance of the CPP to address urgent spending required for the benefit of consumers despite knowing that it will not be able to recover all of these costs due to the incentive mechanism. Consumers will need to bear some of these costs over the CPP for this necessary spend.

F28 Without regulation, all of those additional costs would have been passed back to consumers and likely sooner than in the current situation. There are ongoing incentives for Aurora to spend efficiently during the course of its CPP through the IRIS mechanism (and other features of our regime), where efficiencies will be shared with consumers.

F29 We note, however, that even with a positive baseline adjustment term Aurora still bear an overall net negative revenue adjustment of approximately $25 million through the IRIS mechanism from overspends during the preceding DPPs.

F30 The main disadvantage of the transition provisions that we noted in our 2015 decision paper is the concern that any supplier applying for multiple consecutive CPPs will have low incentives to make permanent efficiency savings.[554] We also consider that this may extend to any years from when the supplier knows it will be coming in for a CPP.[555]

F31 Note that we also intend to evaluate whether the current IRIS mechanism when transitioning to a CPP, in particular the specification of the baseline adjustment term, can be improved for distributors and consumers as part of our review of the IMs.

Capex incentives

Background

F32 As well as having a mechanism for sharing opex savings and overspends, there is also a capex incentive mechanism for Electricity lines companies. The capex incentive mechanism has a similar intention to the opex IRIS in that it shares a consistent proportion of savings and overspends between the supplier and consumers but does so in a different way to the opex IRIS.[556]

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[554] Commerce Commission "Final reasons paper – Further amendments to IRIS for electricity distributors" (25 November 2015), para 3.24.

[555] Along with all of our other IMs we will have an opportunity to assess how significant these disadvantages might be and how we could mitigate these concerns.

[556] Capex spend is generally 'lumpier' and more discrete compared with opex that is generally made up of continuous, repeated costs over regulatory periods.

F33 The capex incentive mechanism works based on the allowable revenue from the supplier's regulatory asset base (not rolling) whereas opex carries forward savings for a number of years (rolling) to ensure a consistent rate.[557]

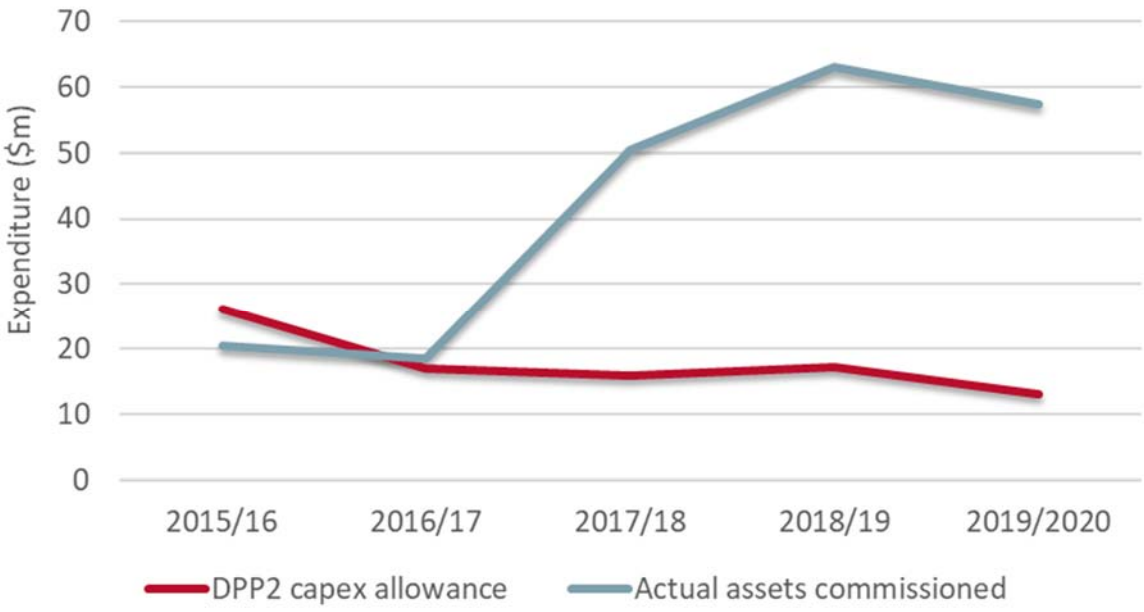
F34 Unlike the opex IRIS, the capex incentive mechanism is applied in the same way regardless of whether the supplier is transitioning to a DPP or a CPP. The mechanism is applied on a five-year cycle in line with the timing of the DPP, regardless of any mid-period CPP applications.

Outcomes of regulatory capex incentives

F35 Note that, as explained above, the capex incentive mechanism applies to Aurora's capex spend during DPP2 (not including any years of DPP3) and the capex incentive amounts are applied in what would have been the second year of DPP3 (ie, the first year of the CPP).

F36 Aurora has significantly overspent its capex allowance during DPP2 as demonstrated in Figure F2 below.

Figure F2 Aurora capex spend during DPP2 (nominal $)



F37 During the DPP2 regulatory period Aurora overspent its allowance by approximately $123 million (in 2020 terms). The capex incentive amounts are made up of a number of factors as displayed in Table F3:

[557] For more information on the capex mechanism, see Commerce Commission "Default price-quality paths for electricity distribution businesses from 1 April 2020 – Final decision – Reasons paper" (27 November 2019), para E9 – E10.

F37.1 Unlike opex, the capex allowance is recovered over time through the return on and of capital that can be charged to consumers.558 The amount of foregone revenue that Aurora loses out on through DPP2 based on its actual level of commissioned assets is approximately $14 million.

F37.2 The retention adjustment is effectively the positive or negative revenue adjustment from capex savings or overspends. We set the retention adjustment incentive rate at 15% for DPP2, which is applied to the difference between the capex allowance and actual commissioned assets during DPP2. The retention adjustment results in a negative revenue adjustment of approximately $18.5 million for Aurora.

F37.3 The capex wash-up reflects the foregone revenue that Aurora would have been able to earn had its actual commissioned assets been included in its allowance. This is calculated as the differences in building blocks allowable revenues between allowed revenue based on the allowance and allowed revenue based on actual commissioned assets, holding everything else constant. The wash-up amount is approximately $14 million.

Table F3 Capex incentive outcomes (PV 2020)

Component	NPV ($m)
Overspends during DPP2 ($m)	-123.2
Foregone revenue based on actual commissioned assets during DPP2 ($m)	-13.8
Capex retention adjustment ($m)	-18.5
Capex wash-up ($m)	13.8
Amount of overspends retained by Aurora ($m)	-18.5

F38 Overall, of the $123 million overspend during DPP2, Aurora bears a net incentive revenue adjustment of approximately negative $18.5 million.

F39 Note that our DPP3 decision was to increase the capex incentive rate from 15% to 23.5% (to be consistent with the opex incentive rate for DPP3 based on the DPP3 WACC). This will apply to Aurora's capex savings/overspends during year one of DPP3 and the first four years of its CPP (the fifth year of the CPP will be set in line with our DPP4 decisions).

[558] That is, Aurora bears a fixed proportion of capex overspends (15% for DPP2). However, it also factors in the missed revenue as a result of the increased RAB, as determined by the differences in the building blocks allowable revenues through the wash-up adjustment.

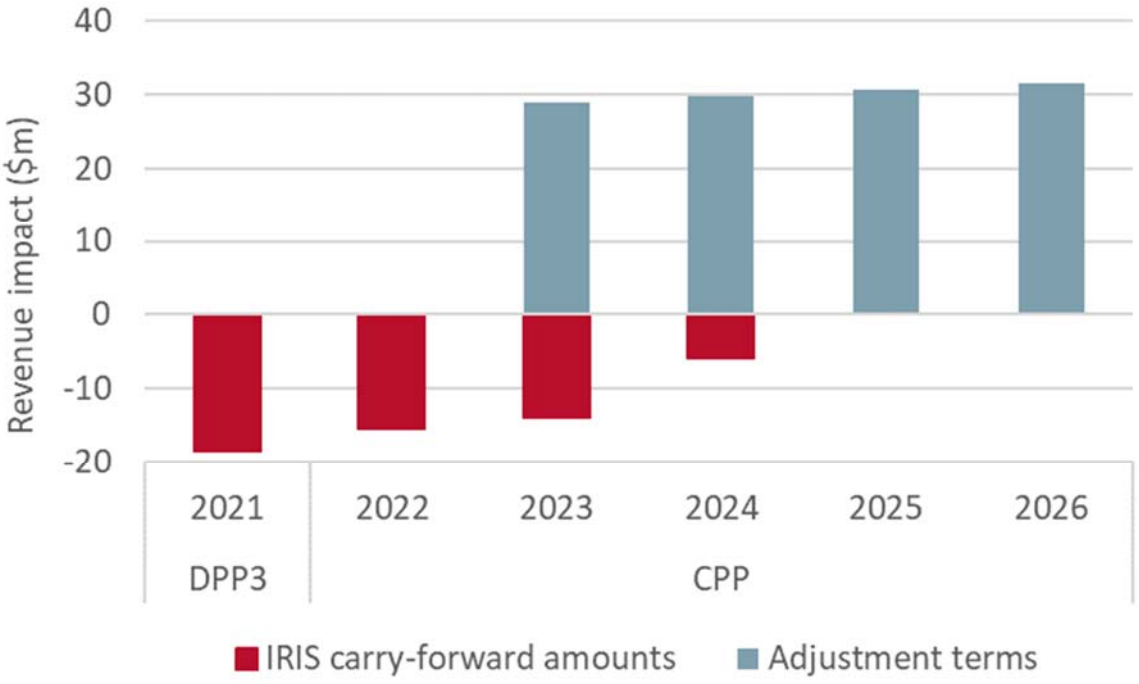
Impact on revenue

Revenue outcomes

F40 Note that these are the impacts on revenue before any aggregate revenue smoothing might be applied (as explained later in this section).

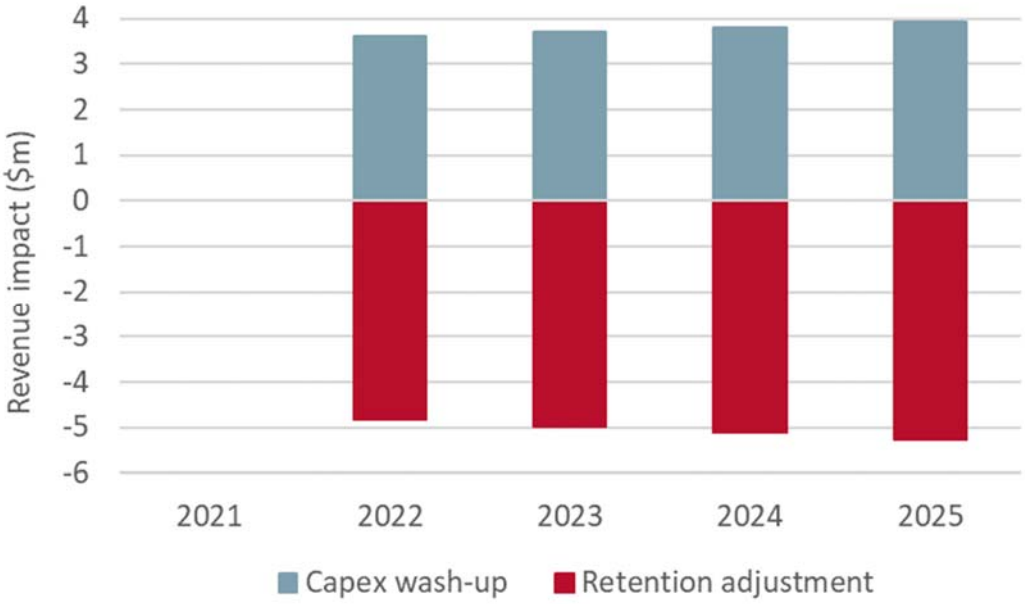
F41 Figure F3 below demonstrates the opex IRIS revenue impacts prior to and during the CPP period. The IRIS carry-forward amounts continue from overspends in DPP2 (as negative revenue amounts) into the CPP period. As discussed previously the adjustment terms take effect from year two of the CPP.

Figure F3 Opex IRIS revenue impacts (nominal $)



F42 Figure 4 below demonstrates the capex incentive revenue impacts during the CPP period. Our IMs state that the capex incentive amounts apply to the same five-yearly timing cycle regardless of whether the distributor is on a DPP or CPP. Therefore, the negative net capex incentive amounts take effect from the first year of the CPP (and do not impact the final year of the five-year CPP).

Figure F4 Capex incentive revenue impacts (nominal $)



Smoothing of the opex IRIS adjustment terms

F43 The IMs include a smoothing mechanism to spread the opex IRIS adjustment terms from year two of a regulatory period (when the adjustment terms are applied) until the end of the period. The opex IRIS adjustments applicable to Aurora, given the five-year CPP period, will be spread over four years (year two to year five of the CPP).

F44 Given its three-year CPP proposal and the magnitude of the opex adjustment amounts, Aurora proposed an IM variation to smooth the one-off IRIS adjustment terms over more than one regulatory period. The rationale for this proposed amendment is that with a three-year CPP the smoothing of the significant IRIS adjustment terms would only occur over two years.

F45 We have proposed setting a five-year CPP period rather than Aurora's proposed three years. While this will spread the adjustment terms over a longer period of time it may not fully mitigate the risk of price shocks for consumers.

F46 We agree that there may be a need to mitigate further price shocks for consumers during a time where prices will already be increasing. In addition to the IRIS adjustment terms, there may be other sources of cost increases over the CPP period that could raise concerns of price shocks to consumers. Therefore, our draft decision is to introduce smoothing of overall revenue at an aggregated level (rather than altering the IRIS adjustment smoothing mechanism in accordance with Aurora's proposed IM variation).

F47 Smoothing at the aggregate revenue level will capture the different drivers of potential large price changes and cap the increase at a specified level for each year of the period. This will help reduce the 'spike' in prices early in the CPP period by smoothing over the remainder of the period and further if necessary. This will roll forward the amount above the capped revenue level into future years through the wash-up mechanism.[559] The amounts will be carried forward into future years until the total amount has been passed through to consumers.

F48 More information on this proposed smoothing mechanism can be found in the Attachment H.

Incentives rates during the CPP

F49 In DPP2 the opex retention factor was approximately 34% based on the DPP2 WACC value and carry-forward of five years. This value is defined in the IMs but is a function of how the IRIS mechanism is applied (ie, based on the WACC and term of carry-forward). In the DPP2 reset we set the capex incentive rate at 15%. This is the retention factor applied to the difference from the allowance during DPP2.

F50 The incentive rates that apply during the CPP are:

F50.1 approximately 23.5% for the opex incentive rate based on the DPP3 WACC rate.[560] However, this will be complicated by the IRIS adjustment terms assuming that Aurora transitions from this CPP to another;[561] and

F50.2 the capex incentive rate will be specified as 23.5% in the CPP Determination consistent with that specified in the DPP3 Determination for the first four years of the CPP, and the incentive rate for year five of the CPP will be set in line with our DPP4 decisions in accordance with the IMs.

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[559] Note that smoothing of the opex IRIS adjustment terms are inflated at the cost of debt to reflect the time value of money while the wash-up account will be inflated at the post-tax WACC.

[560] The DPP3 WACC value is significantly lower than the DPP2 WACC which results in a lower opex retention factor for DPP3.

[561] The way that the baseline adjustment term is currently defined in the IMs, the retention factor for permanent savings will be very low compared with under a DPP. Therefore, the actual retention factor for opex will depend on the amounts of permanent and temporary savings achieved through the first CPP period.

Attachment G Modelling of the draft CPP price path

Purpose of this attachment

G1 This Attachment G sets out our review of Aurora's CPP application in terms of its forecast allowable revenues and shows our proposed approach to smooth these allowable revenues across a five-year CPP period. All expenditure references in this attachment are in nominal terms unless stated otherwise.

G2 It details our findings on the settings for the X-factor and revenue cap mechanisms we propose in our draft price path decision to smooth Aurora's revenues.[562]

G3 It also reflects our draft decision in Attachment J not to agree to Aurora's request to allow the IRIS incentive to be spread across two regulatory periods.[563]

What we are aiming to achieve with a smoothed price path

G4 Later in this Attachment G we describe the tensions that apply when setting a price path for a CPP. Essentially this breaks down to a balancing act between an objective to avoid or moderate price shocks on consumers in the CPP period or a subsequent regulatory period from our current decisions,[564] and an objective of considering the level of revenues necessary for Aurora to efficiently invest in its network to be able to provide services to consumers at the quality they demand.

G5 This Attachment G sets out the way in which the input methodologies take us through the process of setting a CPP price path. However, there are some key decisions we need to make using our judgement:

G5.1 How quickly Aurora's allowable revenues (and therefore lines charges) should allow Aurora to recover from consumers it's investment in building and maintaining its network; and

G5.2 Whether any of Aurora's investment recovery should be deferred beyond the end of the CPP period, for recovery in a following CPP period or DPP period.

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[562] The X-factor effectively sets the slope of the price path between year one and year five of the CPP period. See clause 5.3.4(6) of the IMs to see how this is applied in the price path formulae. The revenue cap mechanism specifies the percentage increase in the forecast allowable revenue that Aurora may use in setting its prices for each year of the CPP period.

[563] Refer also to the draft IM variations on this in Attachment J.

[564] Our price shock objective includes not only the impact on consumers of large increases in prices, but also of uncertainty of future prices and lack of pricing predictability.

G6 There is no perfect balance to these decisions, so in this Attachment we have framed up and analysed what we consider are some realistic price path scenarios. These scenarios expand on the price path options that we offered for stakeholder consideration in our Issues Paper package. These were for price smoothing within the CPP period and price smoothing across multiple regulatory periods:[565]

> **Our options for minimising price shocks for consumers**
>
> 1.5 We are considering various options to minimise or smooth price shocks for consumers while balancing these against the need to ensure Aurora has enough money to fix its network. However, these options do not avoid the costs associated with fixing the network, rather they adjust the price increases into a more manageable and smooth profile. In addition, any costs shifted into the future through smoothing incur an interest expense to reflect the cost of financing, so the total amount recovered from consumers will be higher as a result. This raises the question of to what extent consumers are willing to pay this additional expense to smooth the payment over time.
>
> 1.6 The various smoothing options we are considering include:
>
> 1.6.1 Adjusting the starting point of Aurora's total allowable revenue in the first year of its CPP and the annual rate of change in revenues over the duration of the CPP to smooth price increases at the start of the CPP.
>
> 1.6.2 Examining spreading the price shock into subsequent regulatory periods in order to soften the annual rate of change in prices.

G7 Ultimately, we have landed on two preferred scenarios. One of these scenarios, which focusses on smoothing of revenues within the CPP period, forms the basis of our draft decision for a smoothed price path. This draft decision is outlined below.

G8 The main difference between the two preferred scenarios is the amount of revenue that would be deferred into a second CPP period, and the costs and benefits that such an option involves.

G9 The second scenario focusses more on price smoothing across multiple regulatory periods. Although we have landed on a draft decision for smoothing within the CPP period, we consider that the second scenario has sufficient merits that we are asking in this reasons paper for your views and preferences on the benefits and risks of choosing that alternative.

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[565] Commerce Commission "Have your say on Aurora Energy's investment plan - Consumer summary - Key issues paper" (30 July 2020), p5, para 1.5 to 1.13.

Summary of our draft decisions on smoothing of the CPP price path

G10 The analysis of the smoothing of the price path for the CPP period in this Attachment G is based on our draft decision to set a five-year term for the CPP period. See Attachment B for that draft decision.

G11 As described above, we have used scenarios to help us arrive at the outcomes we are seeking for the smoothed price path. Our draft decision is to fine tune our preferred scenarios to apply a combination of the following measures to assist revenue smoothing:

G11.1 Adjust the X-factor as provided for under IM clause 5.3.4(6);[566] and

G11.2 Apply maximum limits to the percentage increases in Aurora's total 'forecast allowable revenue' as provided for under 3.1.1(1)(b) of the IMs.[567]

G12 Based on our analysis set out in this Attachment, our draft decision is to set values for the X-factor and maximum percentage change in forecast allowable revenue which have the effect of Aurora not being enabled by our draft price path decision to fully recover the full present value amount of its CPP period building blocks allowable revenue within the CPP period.[568]

G13 Some of that present value amount is estimated to remain in Aurora's closing wash-up account balance for year five of the CPP period, and that balance could be recovered by Aurora in a second CPP period.[569] Delaying Aurora's recovery of revenue would result in lower price increases in the CPP period than would be the case if we did not apply price path smoothing.

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[566] Adjusting the X-factor in this way tends to counter the volatile trend of having an initial negative opex IRIS amount in year one of the CPP period followed by positive opex IRIS amounts in years two to five of the CPP period.

[567] Setting maximum limits to the percentage increase in the aggregate total revenue in this way ensures that forecast pass-through costs and forecast recoverable costs can be smoothed by allowing unrecovered revenues to accrue and then be drawn down from the revenue wash-up account in later years (or a later regulatory period).

[568] The IMs set out at clause 5.3.4 the present value equivalence required between the building blocks allowable revenue and the smoothed maximum allowable revenue at a net level. However, Aurora will not recover its revenue present value at a gross level during the CPP period.; the price path smoothing and the revenue wash up mechanism will enable Aurora to recover its present value over a longer term than the CPP period.

[569] In its CPP application, based on an initial three-year CPP period, Aurora signalled the likelihood of a second CPP application. For the purposes of this Attachment we refer to this as a hypothetical second CPP period. However, the decision on whether or not to apply for a second CPP will be Aurora's decision sometime in the future. The decisions about recovery of deferred revenues would occur automatically under the revenue wash-up mechanism. Also, in the event that Aurora does not later apply to us for a second CPP,

G14 Although we are not making decisions at this time on what the price path would be for a second CPP period, we have assumed purely for the purposes of our modelling of the price path in the first CPP period that a similar price path smoothing approach may be used if there was a second CPP period. This could result in the smoothing of Aurora's forecast allowable revenues across two consecutive regulatory periods through a combination of using the X-factor and setting maximum percentage changes in the forecast allowable revenue.

G15 As outlined further in this Attachment G, we modelled the smoothed price path for the five-year CPP period under five different scenarios.

G16 We assessed these scenarios against our revenue path smoothing objectives:

G16.1 Smoothing out revenue shocks for consumers – in this case revenue increases are used as a proxy for consumer prices;

G16.2 Balancing the benefits of avoiding price shocks against the ultimate cost to consumers of delaying price increases. In particular, ensuring the revenue wash-up balance can be brought back to zero (or close to it) in a timely fashion;

G16.3 Ensuring Aurora has enough earnings to enable it to meet its commitments to upgrade its network; and

G16.4 Ensuring there is not a material revenue step off, or difference between total annual revenues, between the end of a second CPP period and the start of a likely next DPP period.[570]

G17 We concluded that three of the five scenarios did not better meet the objective of avoiding or moderating price shocks for consumers while considering the level of revenues necessary for Aurora to efficiently invest in its network than two primary scenarios (Scenario 1 and Scenario 2), which are described in detail in this Attachment G.

G18 Those other scenarios would result in larger deferrals of revenues into a second CPP period, and they are likely to result in much more uncertainty of distribution prices in that second CPP period for both consumers and Aurora.

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any revenue effects we describe for a second CPP period would be considered instead in the setting of the next DPP (DPP4) as that DPP applied to Aurora. We would likely then need to make a decision in the CPP/DPP transition decision on whether to smooth that wash-up balance over the DPP period.

[570] For the discussion in this Attachment G we have included preliminary thinking on a second CPP period following the current one we have made draft decisions for. This is why this objective looks at the step off in revenues from the end of that second hypothetical period. However, this does not take account of any future decisions to increase Aurora's forecast allowable to take account of the additional investment which Aurora has signalled will continue to be required in the next regulatory period.

G19 Key features of Scenario 1, which would allow Aurora to recover most of the building blocks allowable revenue in the CPP period, are:

G19.1 a 10% per annum cap on the increase in the nominal forecast allowable revenue applied in setting prices each year,[571] starting with the increase between 2020-2021 (year one of DPP3) and 2021-2022 (year one of the CPP period);

G19.2 an X-factor of +5%;[572]

G19.3 a relatively modest deferral of additional forecast allowable revenue into a second CPP period in addition to the $32 million deferral proposed by Aurora (estimated at approximately $8.8 million); and

G19.4 an assumed 2% per annum cap on the increase in the nominal forecast allowable revenue applied in setting prices for each year of a second CPP period to enable almost full recovery of the additional $8.8 million of deferred revenue from the first CPP period by the end of the second CPP period.[573]

G20 Key features of Scenario 2, which would have a lower revenue increase in the transition between DPP3 and the CPP period, a slower start to the revenue increases in the CPP period (ie, 10% rate of increase would start in year two), and would defer a greater amount of forecast allowable revenue into a second CPP period, are:

G20.1 an initial 5% cap on the increase in the forecast allowable revenue applied in setting prices in year one of the CPP period, starting with the increase between 2020-2021 (year one of DPP3) and 2021-2022 (year one of the CPP period);[574]

G20.2 an X-factor of +5%;

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[571] Because our analysis in this Attachment G and our bill impact analysis in Attachment H are substantially aimed at residential consumers, when we refer to Aurora's forecast revenues or amounts which combine to form the smoother price path, we are referring to nominal dollar amounts unless were refer otherwise to amounts in real dollars.

[572] A negative X-factor (as proposed by Aurora) means that the change in prices between DPP3 and the CPP would be lower and the rate of increase in prices would be higher than if the X-factor was positive (as we are proposing). This way the X-factor works is discussed further later in this Attachment.

[573] The 2% cap in a hypothetical second CPP period does not reflect that we consider that an absolute 2% cap should apply in that period. It reflects more our concern than any revenue deferral effects carried over from the CPP period should be limited to allow further headroom for the outcomes of a second CPP application to potentially be accommodated in a larger overall cap of, say, 10% per annum.

[574] The initial 5% cap on the increase in revenues in 2021-2022 recognises that consumers might need time to adapt to greater than normal increases in their annual electricity bills, particularly with the financial effects of the COVID-19 economy.

G20.3 a 10% per annum cap on the increase in forecast allowable revenue applied in setting prices for years two through five of the CPP period; and

G20.4 deferral of more forecast allowable revenue into a second CPP period than proposed by Aurora (estimated at approximately $38.5 million, in place of the $8.8 million forecast in Scenario 1); and

G20.5 an assumed 3% per annum cap on the increase in forecast allowable revenue applied in setting prices for each year of a second CPP period is estimated to largely recover the additional $38.5 million deferred revenue from the first CPP period by the end of the second CPP period.

G21 Achieving comparability between our five-year CPP scenarios and the price path for the three-year CPP period applied for by Aurora involves a number of adjustment steps because the annual forecast allowable revenue amounts are not directly comparable.

G22 Our analysis indicates that the smoothing of revenues under Scenario 1 could result in the deferral of some additional revenues over what Aurora proposed into a second CPP period for Aurora of approximately $8.8 million. We take from the proposal by Aurora in its proposed IM variation, where it effectively proposed to defer approximately $32 million into what is now the first three years of a second CPP period, that it is implicitly comfortable with this broad level of deferral and therefore that our Scenario 1 with an extra $8.8 million deferral does not present undue commercial risk for Aurora.

G23 Scenario 1 holds the greatest advantages in terms of the price path objectives compared to other scenarios. It would allow for the revenue wash-up balance to be cleared and no material revenue step off issues by the end of a second CPP period. It smooths revenues to the extent possible without compromising our other evaluation criteria.

G24 We found that adjusting the Scenario 1 settings to derive an improved revenue smoothing outcome compromised our other objectives. We observed a direct trade-off between smoothing revenue for consumer benefit and delaying revenue recovery for Aurora.

G25 Our draft decision is therefore to set the price path for the CPP period using the modelling in Scenario 1 because it gives a balance between pricing predictability for consumers against providing assurance to Aurora that it will recover all of the CPP period building blocks allowable revenue without exposing it to unknown risks of deferral. The total forecast revenue for each year that results from that draft decision is set out in Table G1.

Table G1 Total forecast revenue for each year under Scenario 1

	2021/22	2022/23	2023/24	2024/25	2025/26
Draft Decision	107,112,000	117,823,000	129,605,000	142,566,000	156,822,000

G26 Scenario 2 proposes to defer $38.5 million into the second CPP period. This amount is in addition to the $32 million of revenue that Aurora was already prepared to defer through its proposal to spread its IRIS amounts into the second CPP period. Although we take from Aurora's proposal that it is implicitly comfortable with some level of revenue deferral, if we consider Scenario 2 for our final CPP decision, we would need to be assured that Scenario 2, with its additional revenue deferral (compared with Scenario 1) would not present an undue commercial risk for Aurora.

G27 We therefore invite stakeholders and Aurora to provide their submissions to us on our draft decision to apply Scenario 1 for the CPP period and comment on the reasons why they think Scenario 2 might offer greater benefits or risks than Scenario 1.

G28 As noted in Attachment J, our draft decision is also not to agree with Aurora's request to vary clause 3.3.2(2) of the Electricity lines company IMs. We have concluded that the smoothing of Aurora's forecast revenues is just as effective by doing this at the aggregate revenue level, inclusive of forecast pass-through costs and forecast recoverable costs, as it would be by smoothing input components of the forecast revenues such as the IRIS amounts.

Structure of this Attachment

G29 This Attachment has the following structure:

G29.1 Our decision-making framework;

G29.2 Our approach to revenue modelling;

G29.3 The unique features of Aurora's CPP and the challenges these present;

G29.4 The components of Aurora's forecast allowable revenue;

G29.5 Aurora's CPP application maximum allowable revenue in context;

G29.6 Our review of Aurora's CPP application and the effect on the maximum allowable revenue;

G29.7 Aurora's CPP application maximum allowable revenue in context; and

G29.8 Our proposed approach to revenue smoothing.

Our decision-making framework

G30 In setting Aurora's maximum allowable revenue under the CPP we are largely guided by the forecast expenditure we approve when applying the expenditure objective. However, the expenditure objective does not provide detailed guidance on how the maximum allowed revenue should be smoothed each year of the CPP period. Accordingly, in considering revenue smoothing, we have largely been guided by the Purpose of Part 4 (which is also one of our Evaluation Criteria).[575]

G31 The Purpose of Part 4 is to promote the long-term benefit of consumers. We consider the avoidance of price shocks to be in consumers' long-term interests.[576] In considering revenue smoothing (often referred to as "price smoothing"), we have been cognisant of this tension.

[575] Chapter 3, para 3.24 to 3.52.

[576] In that regard we not that the Act explicitly provides for the minimisation of price shocks at s53P(8)(a).

G32 However, consumers' interest in avoiding price shocks must be balanced against their interest in avoiding ultimately having to pay more for lines services due to delaying Aurora's revenues,[577] while also making sure the revenue path remains net present value neutral for Aurora. For example, this has led us to avoid scenarios where the wash-up balance is not brought to zero (or close to it) in a timely fashion.

G33 It is also relevant to ensure Aurora has sufficient revenue to enable it to maintain and upgrade its network. This is referred to in the Part 4 purpose of having "incentives to innovate and to invest, including in replacement, upgraded and new assets". We note that Aurora has not at this stage provided any indication that smoothing will create a financial issue or that this will manifest itself in underinvestment in its network to the detriment of its consumers.

G34 We also prefer to avoid a situation which could lead to a price or revenue shock when Aurora transitions from its CPP on to a subsequent CPP or DPP. It would not be in consumers' interests to avoid a price shock now, only to face one in five years time. However, we note that even if we apply this preference, we could still take various steps when setting Aurora's maximum allowable revenue under its subsequent price-quality path to mitigate any shock created by this CPP decision.

G35 Given the above, to assess our smoothed price path scenarios, we developed our following objectives, within the Evaluation Criteria, to set the profile of the price path for the CPP period:

G35.1 smoothing out revenue shocks for consumers – in this case revenue increases are used as a proxy for consumer prices;[578]

G35.2 balancing the benefits of avoiding price shocks against the ultimate cost to consumers of delaying price increases. In particular, ensuring the revenue wash-up balance can be brought back to zero (or close to it) by a projected horizon, which for practical purposes we have taken to be the end of a second regulatory period;

G35.3 ensuring Aurora has enough earnings to enable it to meet its commitments to upgrade its network and meet the quality standards we set based on the capex and opex allowances in the CPP; and

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[577] When revenues are deferred into later in the CPP period or are deferred into a later regulatory period, an interest factor is applied, usually at the WACC rate, to compensate Aurora for the time value of money. As a result, this "interest" has the effect of increasing customer prices in those future periods, and in increasing overall the amount that customers will pay in nominal terms for the investments that Aurora will make in its network.

[578] See Attachment H for our estimates of how our draft decisions on smoothed revenues translate into residential consumer bill impacts.

G35.4 ensuring there is not a material revenue step off, or difference between total annual revenues, between the end of a second CPP period and when Aurora joins the next DPP period.[579]

Our approach to revenue modelling

G36 Part 5 Subpart 3 of the CPP IMs sets out how to determine annual allowable revenues for each year of the CPP period and to then set a price path for the CPP period. The sequence is briefly:

G36.1 **Step 1 (when setting the CPP):** Calculate the 'building blocks allowable revenue before tax' for each disclosure year of the CPP period (see the required formula in clause 5.3.2 of the CPP IMs). This step requires us to set the 'building block values', which include a forecast value for the return on the RAB value and any assets forecast to be commissioned in the disclosure year, forecast depreciation, forecast corporate tax (including deferred tax movements) and forecast opex.

G36.2 **Step 2 (when setting the CPP)**: Calculate the 'building blocks allowable revenue after tax' for each disclosure year of the CPP period (see clause 5.3.3 of the CPP IMs). To carry out this step requires us to deduct the forecast regulatory tax allowance from the building blocks allowable revenue before tax calculated in Step 1.

G36.3 **Step 3 (when setting the CPP)**: Calculate the annual 'maximum allowable revenue after tax' in the CPP price path by equating the present value of the series of values of the 'maximum allowable revenue after tax' calculated in this step with the present value of the series of 'building blocks allowable revenue after tax' as calculated in Step 2 (see clause 5.3.4 of the CPP IMs). To calculate these present value amounts, the present values are calculated by applying the 67th percentile estimate of WACC, as specified in the IMs.

[579] For the discussion in this Attachment G we have included preliminary thinking on a second CPP period following the current one we have made draft decisions for. This is why this fourth objective looks at the step off in revenues from the end of that second hypothetical period.

G37 Part 3 Subpart 1 then sets out how the smoothed CPP price path is specified based on the amounts of annual maximum allowable revenue after tax and other price components:

G37.1 **Step 4 (when setting the CPP):** Calculate the 'forecast allowable revenue" for each year of the CPP period. The forecast allowable revenue includes the 'forecast net allowable revenue', forecast pass-through costs, forecast recoverable costs, and the balance of the revenue wash-up account. These are described in more detail later in this Attachment G,[580] but briefly they include:

G37.1.1 **Step 4.1**: set forecast net allowable revenue – see Step 5;

G37.1.2 **Step 4.2**: calculate forecast pass-through costs, including local authority rates, Commerce Act levies, and other industry levies (see clause 3.1.2 of the EDB IMs);

G37.1.3 **Step 4.3**: calculate forecast recoverable costs, including Transpower transmission charges, costs incurred in relation to avoided transmission charges arising from distributed generation (including embedded or notionally embedded generation), and certain allowable costs of the CPP application (see clause 3.1.3 of the EDB IMs); and

G37.1.4 **Step 4.4**: forecast the opening balance of the revenue wash-up account, inclusive of the time value of money at the WACC rate (see clause 3.1.3(12) and (13)); and

G37.2 **Step 5 (when setting the CPP)**: the 'forecast net allowable revenue' is specified for the first disclosure year of the CPP period in the CPP determination (see clause 3.1.1(6) of the IMs) and in subsequent disclosure years of the CPP period is specified based on that first year revenue value (see clause 3.1.1(7) of the IMs); the smoothed price path is derived by applying the maximum allowable revenue, the opening value for the forecast net allowable revenue, forecast CPI values and an X-factor;

G37.3 **Step 6 (when setting the CPP)**: the IMs allow us to specify a limit or limits on the annual percentage increase in the forecast revenue from prices (see clause 3.1.1(1)(b) of the IMs); and

G37.4 **Step 7 (during the CPP period)**: the 'forecast revenue from prices' that Aurora calculates each year must not exceed the 'forecast allowable revenue' for each disclosure year of the CPP regulatory period (see clause 3.1.1(1)(a) of the IMs), which will take into account any limitation we set under Step 5.

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[580] Attachment G, para G50 to G53.

The unique features of Aurora's CPP and the challenges these present

G38 Aurora's CPP has several unique features, not least there is a considerable uplift in proposed spending, Aurora has stated it intends to apply for a second CPP and the opex IRIS incentive amounts are significant.

G39 CPP applications usually request a material increase in approved spending and revenues. Some form of intra-period revenue smoothing is usually applied to reduce revenue volatility for consumers. However, Aurora's CPP has several unique features that complicate revenue smoothing. These include:

G39.1 the scale of the increase in Aurora's proposed spending and approved revenues is significant and could result in material price shocks for consumers;

G39.2 Aurora has stated that it intends to apply for a second CPP following its current CPP. If it does, this second CPP may request a further step up in spending and revenues; and

G39.3 Aurora's opex IRIS recoverable is significant in scale and its profile is materially negative in the first year, before becoming materially positive from year 2 of the CPP period onwards. Because this recoverable cost is not included in the maximum allowable revenue we cannot effectively smooth revenues by just using the X-factor.

G40 We considered the feedback we received from stakeholders throughout our earlier consultation processes. This included submissions on our Issues Paper package and the three options we posed in terms of stakeholder preferences regarding how they would like price increases to be managed.

G41 From 113 submissions that we sampled:

G41.1 A total of 21 submissions preferred this scenario: "I would prefer prices to rise immediately but in gradual and steady increments";

G41.2 A total of seven submissions preferred this scenario: "I would prefer a smaller price rise in the first year and then larger increases in the following years to give me time to prepare". This position was endorsed by members of the Aurora CAP group, who suggested that a smaller increase in the first year could give time for consumers to be upskilled in available energy efficiency options to allow consumers to moderate the effects of the larger increases in years two through five;

G41.3 A total of 15 submissions preferred this scenario: "I would be willing to pay more in total in order to smooth price increases over a longer period"; and

G41.4 A total of 70 submissions either did not provide a response to our questions on price path smoothing or offered up alternatives that would not work under the Act or the IMs.

G42 In view of the relatively low response to our questions, we have given limited weight to these submissions when assessing the scenarios.

G43 Given the unique features of Aurora's CPP application and the feedback from submissions so far, we propose to adjust Aurora's X-factor and to set annual maximum percentage changes in forecast allowable revenue in order to smooth out revenue (and therefore price) volatility during the CPP period. This approach can also be used in the following regulatory period if Aurora applies for another CPP or if it moves back to the DPP4.

G44 To do this, we have forecasted the components of Aurora's forecast allowable revenue. Included in these forecasts are the various draft changes we have proposed to Aurora's CPP and the combined effect of those draft changes on its maximum allowable revenue (MAR). These changes have reduced Aurora's pre-tax 5-year MAR by approximately $67.0 million, or around $13.4 million annually in comparison with what Aurora proposed in its CPP application.

G45 We developed five scenarios for revenue smoothing. These were largely based on what we had earlier described in our Issues Paper package for stakeholder consultation:[581]

G45.1 **Scenario 1**: "I would prefer prices to rise immediately but in gradual and steady increments." + 10% per annum revenue cap for all years of the CPP period, followed by a 2% per annum revenue cap assumption for a second CPP period (note: this cap is only for calculation purposes in respect of deferred revenues and does not represent the cap that may later be set for that CPP period, or DPP period, if applicable);

G45.2 **Scenario 2**: "I would prefer a smaller price rise in the first year and then larger increases in the following years to give me time to prepare" + 5% per annum revenue cap in year one of the CPP period, followed by revenue caps at 10% per annum for each of the following years of the CPP period, and followed by a 3% per annum revenue cap assumption for a second CPP period (note: again, this cap is only for calculation purposes in respect of deferred revenues and does not represent the cap that we may later set for that CPP period, or DPP period, if applicable, in about five years time);

[581] Commerce Commission "Have your say on Aurora Energy's proposal to change its prices and quality standards to fund major network investment - Discussion of key issues and questions for consumers and stakeholders" (30 July 2020), para 1.5 to 1.13.

G45.3 **Scenario 3**: "I would be willing to pay more in total in order to smooth price increases over a longer period" - Apply a 5% per annum revenue cap across all years of the CPP period and across an assumed second CPP period. This lines up with our Issues Paper package option;

G45.4 **Scenario 4**: To test what CPP period revenue increases would be needed to work through the maximium allowable revenue and opex IRIS increases, and to clear the wash-up balance by the end of the CPP period - Apply a +7% X-factor, which has the impact of inverting the slope of the smoothed price path, accelerating the recovery of revenues by Aurora. It results in a negligible deferral of revenues into a second CPP period.;

G45.5 **Scenario 5**: To test if there some additional benefit from smoothing the opex IRIS amounts across two CPP periods - Apply a -2% X-factor, which flattens the slope of the price path. It smooths the opex IRIS amounts over two CPP periods, which is a slightly longer period than Aurora proposed in its CPP application (ie, a 10-year combined period versus an eight-year period proposed by Aurora).

G46 We assessed these scenarios and a base case scenario, being what Aurora proposed (but adjusted to take it from a three-year CPP to a five-year CPP),[582] against our four price path smoothing objectives.

G47 As well as the expenditure adjustments we are proposing in the draft decisions elsewhere in this paper, we made the following key adjustments to key parameters of the modelled price path between the scenarios:

G47.1 adjusting the X-factor to +5% (proposed by Aurora at -7%); and

G47.2 setting an annual 10% cap on the increase in Aurora's forecast allowable revenue throughout the CPP period.[583]

G48 Scenario 3 gives rise to an unsustainable amount of deferral of revenues between the CPP period and the assumed second CPP period and has been dismissed for this reason as a smoothed price path option. The regulatory risks and the commercial risks to Aurora are too great to proceed with this option.

G49 Scenario 4 is not an option requested by Aurora or favoured by consumers, and we concluded that it did not offer marginal benefits over Scenario 1 or Scenario 2, so again we have dismissed this option.

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[582] Attachment G, para G101 and G103.

[583] Commerce Commission, Electricity Distribution Services Default Price-Quality Path Determination 2020 [2019] NZCC 21, p. 17, definition of 'limit on annual percentage increase in forecast revenue from prices'.

G50 Scenario 5 is effectively a variation on Scenario 1, but it has a greater deferral of revenues into the second CPP period and a higher percentage rate of revenue increase in the first CPP period, so it does not better meet the Part 4 purpose than Scenario 1.

G51 The rest of this Attachment discusses Scenario 1 and Scenario 2 in more detail.

G52 The price path modelling for Scenario 1 and Scenario 2 described in this Attachment does not discuss expected resulting consumer bill impacts. This is covered further in Attachment H.

The components of Aurora's forecast allowable revenue

G53 The 'forecast allowable revenue' is defined in IM clause 3.1.1(4) (see Figure G1).

Figure G1 Forecast allowable revenue defined

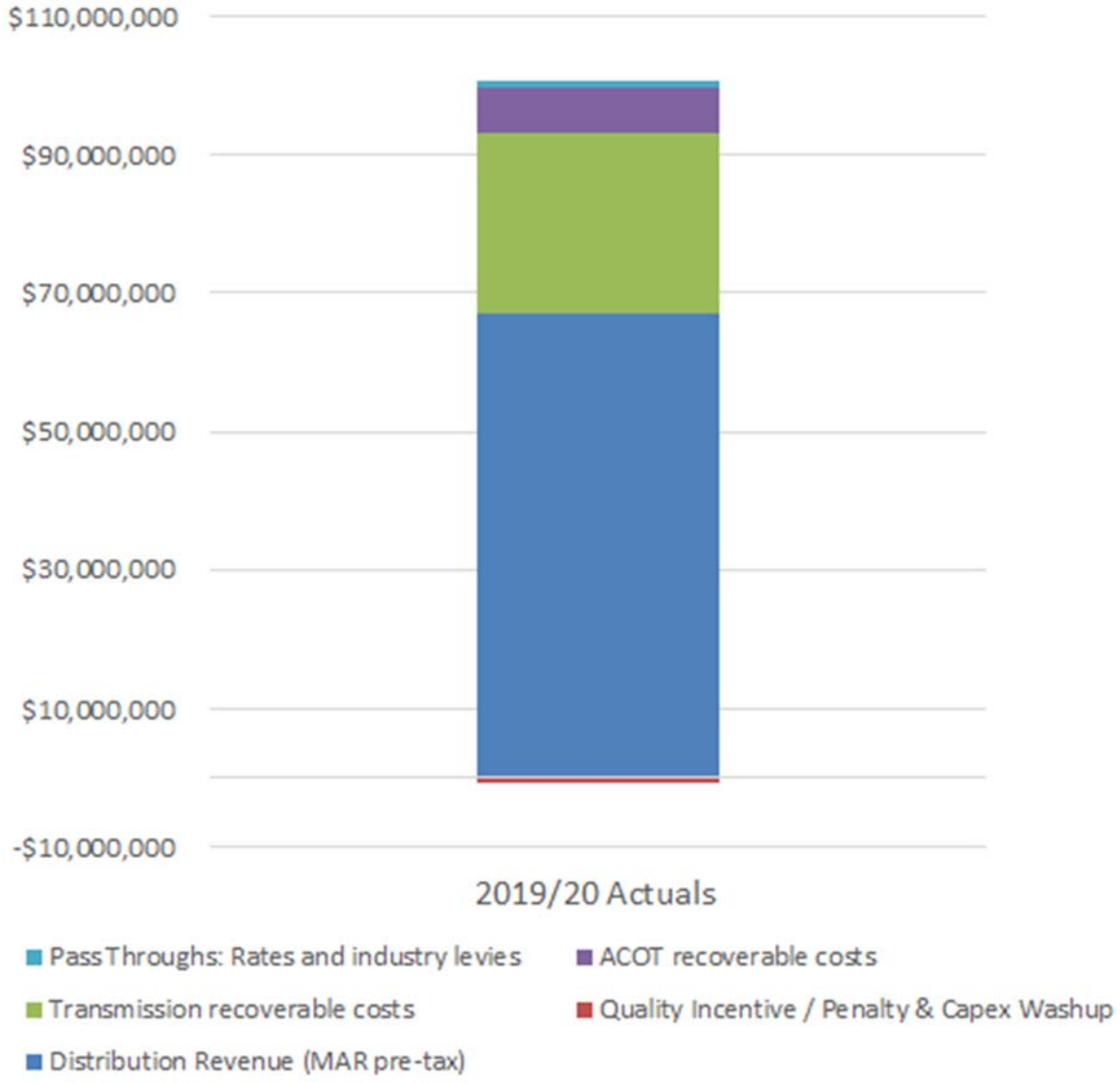
(4) For the purpose of this subpart, 'forecast allowable revenue' as specified in a **DPP determination** or **CPP determination** includes-

- (a) **forecast net allowable revenue**;
- (b) forecast **pass-through costs**;
- (c) forecast **recoverable costs**, excluding any **revenue wash-up draw down amount** under clause 3.1.3(1)(v) for the **disclosure year** referred to in subclause (1); and
- (d) the balance of the **wash-up account** available for draw down.

G54 The "forecast net allowable revenue" noted above in IM 3.1.1(4)(a) is the present value equivalent of a distributor's MAR, taking into account alternative X-factors.

G55 To give context, Figure G2 sets out the components of Aurora's actual total allowable revenue for its 12 month assessment period ending 31 March 2020.

Figure G2 The components of Aurora's 2020 total allowable revenue

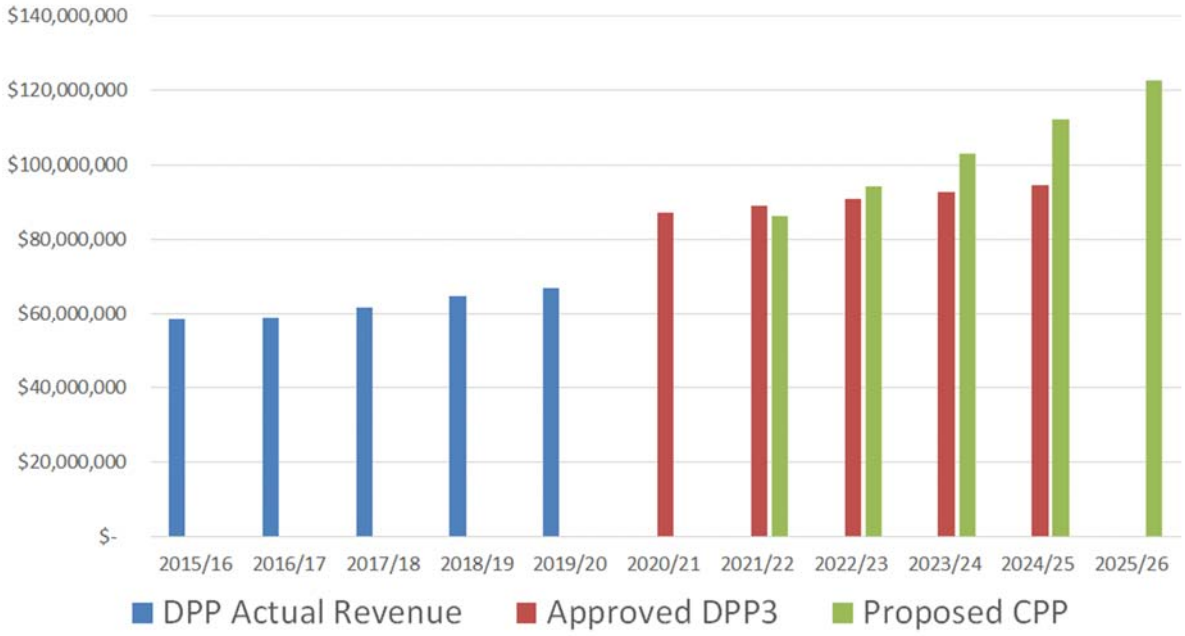


G56 In order to understand how to smooth revenues we have forecasted these revenue components. The following sections describes our forecasting, including the adjustments we have made to Aurora's maximum allowable revenue as a result of our review of Aurora's CPP.

Aurora's CPP application maximum allowable revenue in context

G57 Although applied for as a three-year CPP, Aurora's CPP application (as required by the IMs) also sets out a five-year total pre-tax maximum allowable revenue,of $518.4 million. This is 67% greater in funding compared to Aurora's actual DPP2 maximum allowable revenue of $310.9 million. It is also 14.1% greater in maximum allowable revenue compared to DPP3, if Aurora had stayed on DPP3, where the five-year maximum allowable revenue would have been $454.4 million. Figure G3 compares these three maximum allowable revenues.

Figure G3 MAR Comparison - DDP2/Approved DPP3/CPP application (five-year basis)



G58 Aurora's maximum allowable revenue for DPP3 is a material increase compared to DPP2 due to the increased investments Aurora had already undertaken prior to DPP3 to remediate its network.

G59 The opening DPP3 maximum allowable revenue is not that dissimilar to the CPP application's maximum allowable revenue for that year. However, the CPP application maximum allowable revenue increases markedly after that. This is driven by the -7% X-factor modelled in the CPP application. We understand this X-factor was chosen by Aurora to keep revenues lower in the first year of the CPP period in order to allow its customers time to adjust to higher prices.[584]

[584] A negative X-factor results in a lower starting point on a revenue path and a steeper upward slope of the path. A positive X-factor, in contrast, results in a higher starting point on the revenue path and a downward slope on the path.

Our review of Aurora's CPP application and the effect on maximum allowable revenue

G60 In our draft decisions described in Attachments D and E of this draft reasons paper, we propose changing part of Aurora's CPP application in three areas to ensure its forecast spending is prudent. These changes relate to Aurora's forecast cost escalators and foreign exchange rates, forecast operating expenditure, and forecast capital expenditure.

G61 We have applied these draft changes through our CPP price path model and have derived the impact on Aurora's maximum allowable revenue. The following sections discuss these three areas that we have changed.

G62 All maximum allowable revenue results presented at this stage in the analysis retain Aurora's proposed -7% X-factor, but later in this Attachment G we address how a change in the X-factor from -7% to +5% could further fine tune the maximum allowable revenue against the two main price path smoothing objectives.

G63 We have not yet updated the price path for Aurora's 2020 actual expenditure numbers. We compared the 2020 actual numbers to the CPP 2020 forecasts and have estimated the actual numbers will reduce Aurora's CPP maximum allowable revenue slightly. This is primarily due to it commissioning less assets in 2020 than forecast, leading to a lower RAB value. Aurora has stated that it does not expect to catch up with this shortfall in commissioning assets in later years.

G64 We propose incorporating these changes into our final CPP decision.

Our review of Aurora's Cost escalators, and Foreign Exchange Rates

G65 Aurora's CPP application used cost escalators based on recommendations from Sapere. However, the final verification report on Aurora's CPP proposal states that these cost escalators are no longer appropriate given the significant impact that Covid-19 is having on the New Zealand and worldwide economy.

G66 We agree with this conclusion. We have therefore updated the cost escalator values and foreign exchange rate forecasts in our CPP price path model using independent forecasts from the New Zealand Institute of Economic Research (NZIER) based on more recent data. We also updated the various metal commodity prices forecasts using more recent World Bank forecasts.

Our review of Aurora's Operating Expenditure Cost Escalators

G67 There are two cost escalators applying to Aurora's opex; the Producers Price Index (PPI) and the Labour Cost Index (LCI). Figures G4 and G5 set out comparisons of the PPI and LCI in Aurora's CPP application with updated NZIER forecasts following Covid-19.

Figure G4 Producers price index (PPI) forecasts

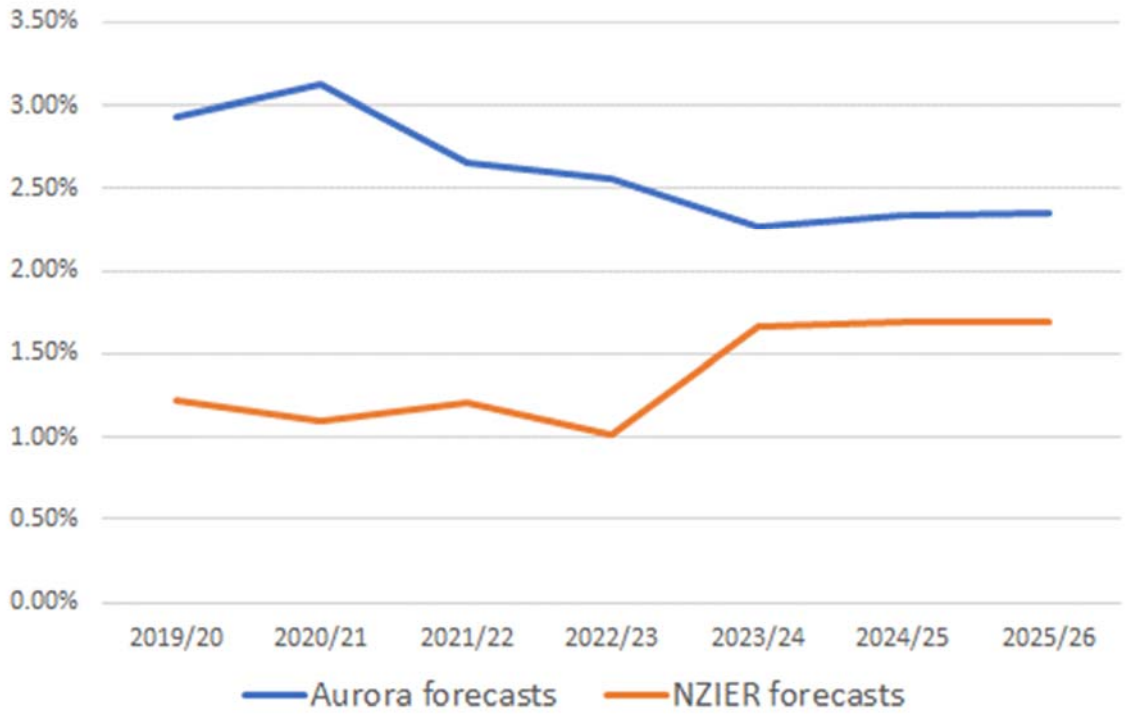
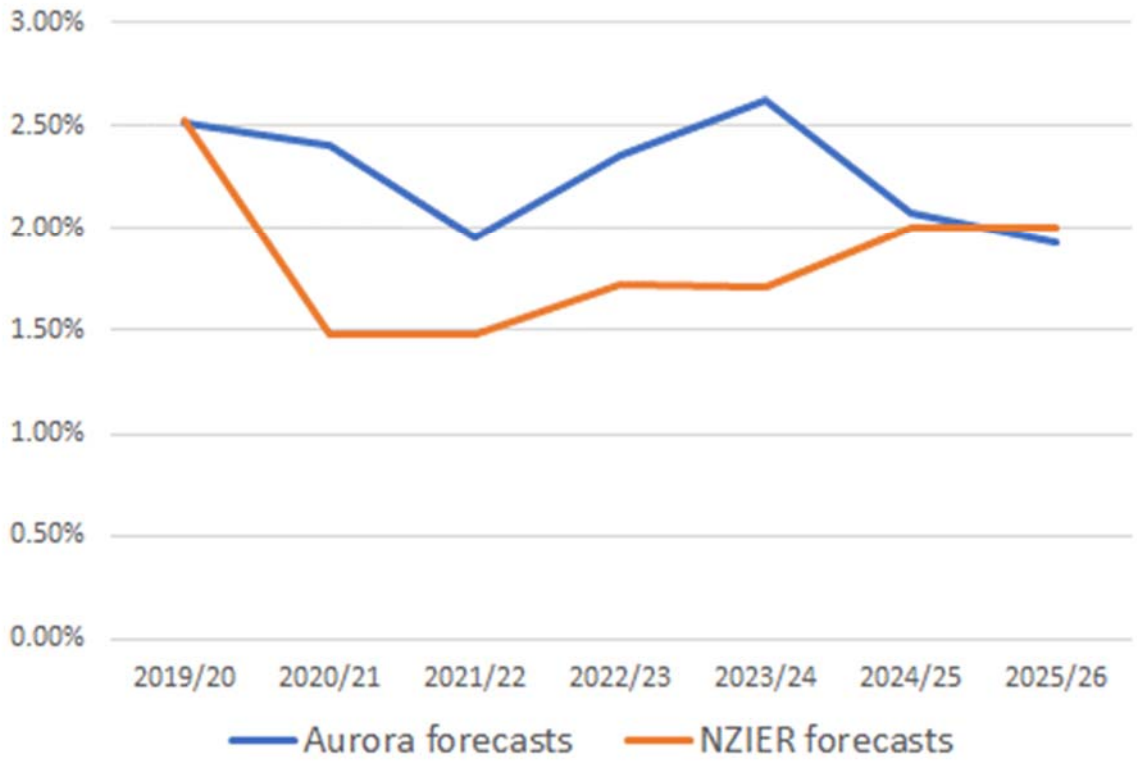


Figure G5 Labour cost index (LCI) forecasts



G68 Given Covid-19 has clearly had a negative impact on these cost escalators, we have updated these based on the NZIER latest forecasts. This has had the effect of reducing the five-year pre-tax maximum allowable revenue by $8.3 million, or around $1.7 million per annum.

Our review of Aurora's Capital Expenditure Cost Escalators

G69 We compared Aurora's CPP capital expenditure cost escalators against the NZIER post Covid-19 forecasts. Both of the Capital Goods Price Index (CGPI) and the Labour Cost Index (LCI) for Construction have been negatively impacted following Covid-19 (as shown in Figures G6 and G7). We have adopted these updated escalators.

Figure G6 Comparison of Capital Goods Price Index (CGPI) forecasts

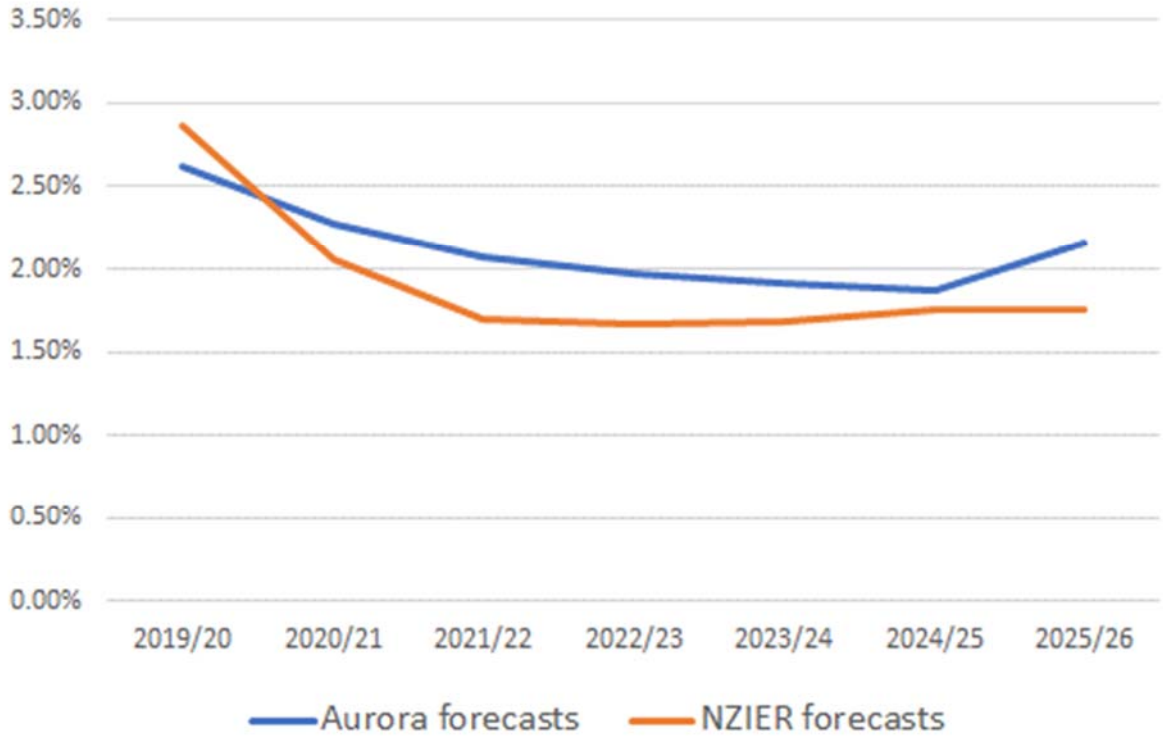
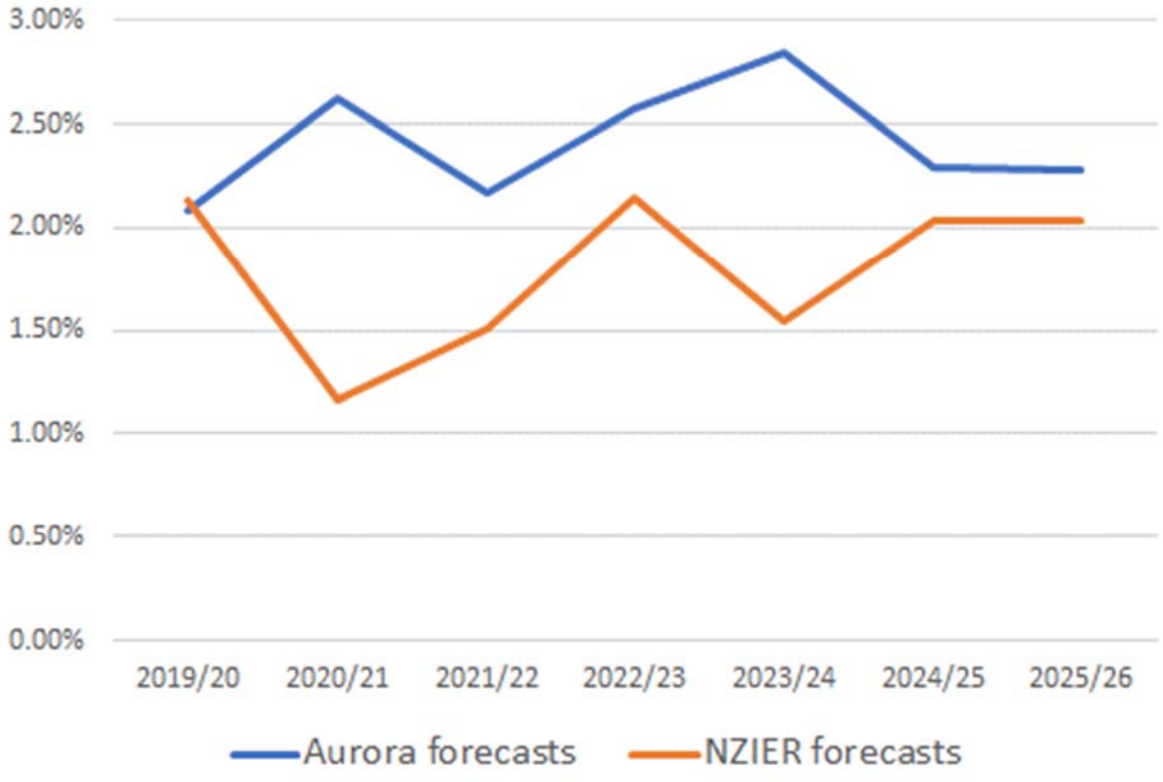


Figure G7 Comparison of Labour Cost Index – Construction (LCI -Construction)



G70 Post Covid-19 commodity prices have changed sufficiently for us to update Aurora's metal price forecasts using World Bank forecasts as at April 2020 for:

G70.1 aluminium (used in cables and conductors);

G70.2 copper (used in transformers and switchgear); and

G70.3 iron ore (as a proxy for steel – used in transformers and switchgear).

G71 These changes resulted in reducing the five-year pre-tax maximum allowable revenue by $184,000, or around $37,000 per annum.

Our review of Aurora's Foreign Exchange Rate Forecasts

G72 We have updated the USD/NZD exchange rate forecasts in our CPP price path model using forecasts from NZIER, given that metal price forecasts are generally denominated in USD. This results in a slightly higher forecast USD/NZD exchange rate over the CPP period, as shown below in Table G3.

Table G2 Forecast USD/NZD exchange rate comparison

	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26
Aurora's Proposal	0.644	0.644	0.644	0.644	0.644	0.644	0.644
Our Updated Forecast	0.634	0.647	0.657	0.658	0.660	0.660	0.660

G73 This can be expected to provide greater purchasing power for imported electrical equipment and potentially lowers Aurora's forecast capital expenditure. These changes were applied and they resulted in reduction of the five-year pre-tax maximum allowable revenue by $425,000, or around $85,000 per annum.

G74 However, while we have updated Aurora's opex and capex cost escalators to account for the impact of Covid-19 and the consequential changes to the forecasts for future CPI, we are unable to update Aurora's CPI forecast used in our setting of its price path because of how it is prescribed in the IMs. This presents a risk to Aurora's future revenue recovery.

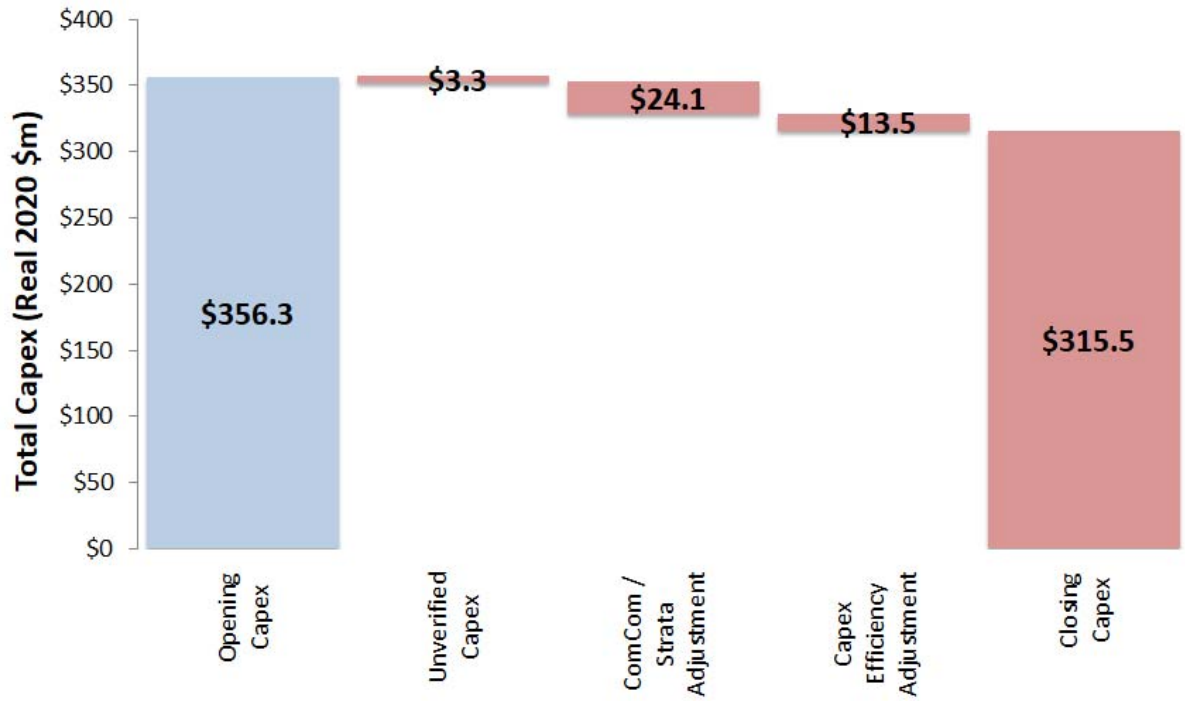
G75 If, as now expected, actual inflation proves to be lower than Aurora's CPI price path forecast, Aurora would permanently forgo a portion of its allowable revenue. This may be remedied to allow us to use a better reflection of the forecast CPI by an agreed IM variation, which would allow the Aurora price path CPI forecasts to be updated. We would be open to considering an application from Aurora for such an IM variation.

Our review of Aurora's Capital Expenditure Forecasts

G76 Aurora's capital expenditure forecasts were reviewed by the Verifier, by Strata and by us.[585] These reviews resulted in various draft changes being made to individual Aurora projects, to various types of asset renewal programmes and to 'other network capex'.

G77 As a result of these changes, the total capex for the five-year CPP period was reduced by $40.9 million (real $2020, excluding capital contributions and right of use assets). Figure G8 shows these reductions. In nominal terms, these changes reduce the total five-year pre-tax maximum allowable revenue by $4.6 million, or around $920,000 per annum in nominal terms.

Figure G8 Changes in Aurora's Total Capital Expenditure in CPP period ($Real 2020, excluding capital contributions and right of use assets)



Our review of Aurora's Operating Expenditure Forecasts

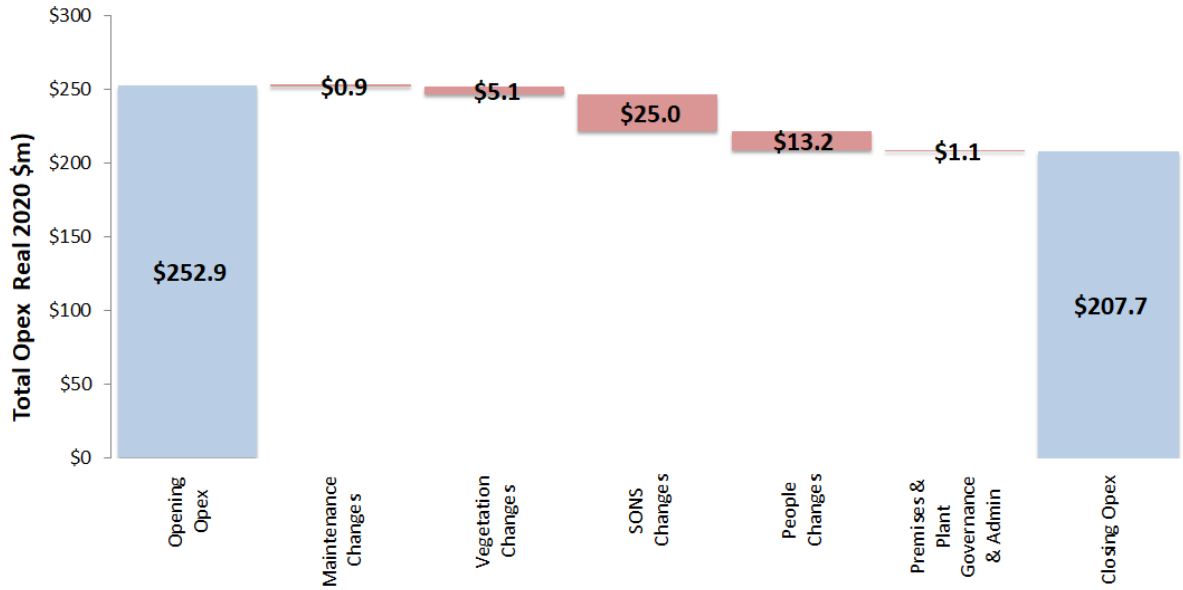
G78 Aurora's operating expenditure forecasts were reviewed by Strata, the Verifier, and by us.[586] These reviews resulted in changes being made to most opex categories.

[585] Refer to Attachment D.

[586] Refer to Attachment E.

G79 As a result of these changes, total forecast opex for the five-year CPP period was reduced by $45.2 million (real $2020). Figure G9 shows these reductions. In nominal terms, the changes reduce the total five-year pre-tax maximum allowable revenue by $48.7 million, or around $9.7 million per annum in nominal terms.

Figure G9 Changes in Aurora's Total Operating Expenditure in CPP period ($Real 2020)

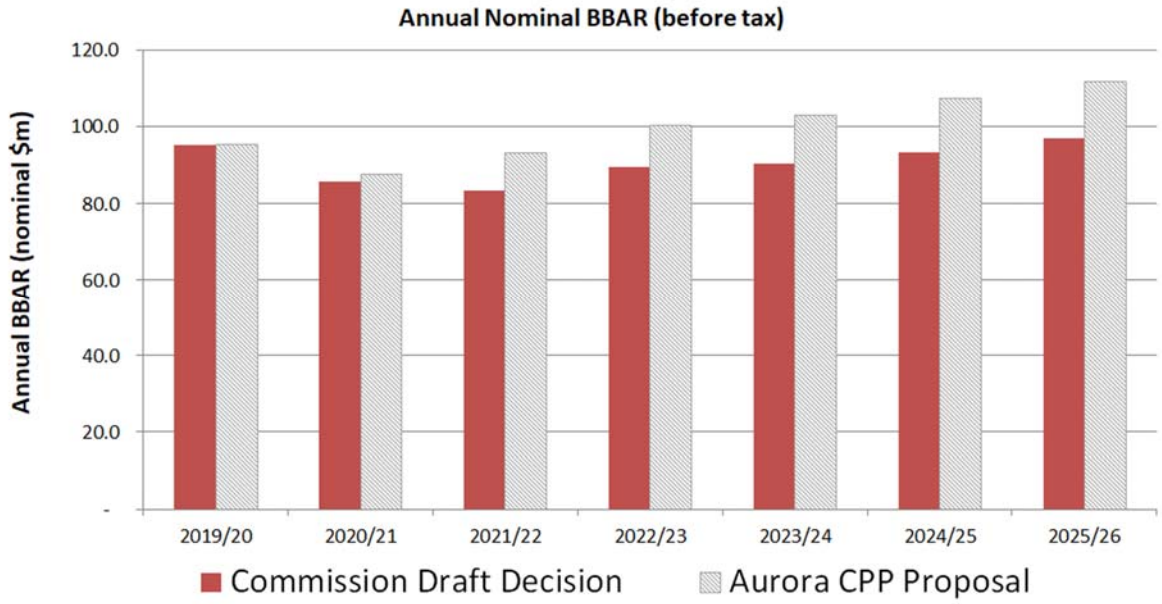


The combined effect of these changes on Aurora's building blocks allowable revenue and maximum allowable revenue

G80 Aurora's CPP application was for a total building blocks allowable revenue (ie, unsmoothed price path) of $516.3 million for the five-year CPP period. Refer to Figure G10.

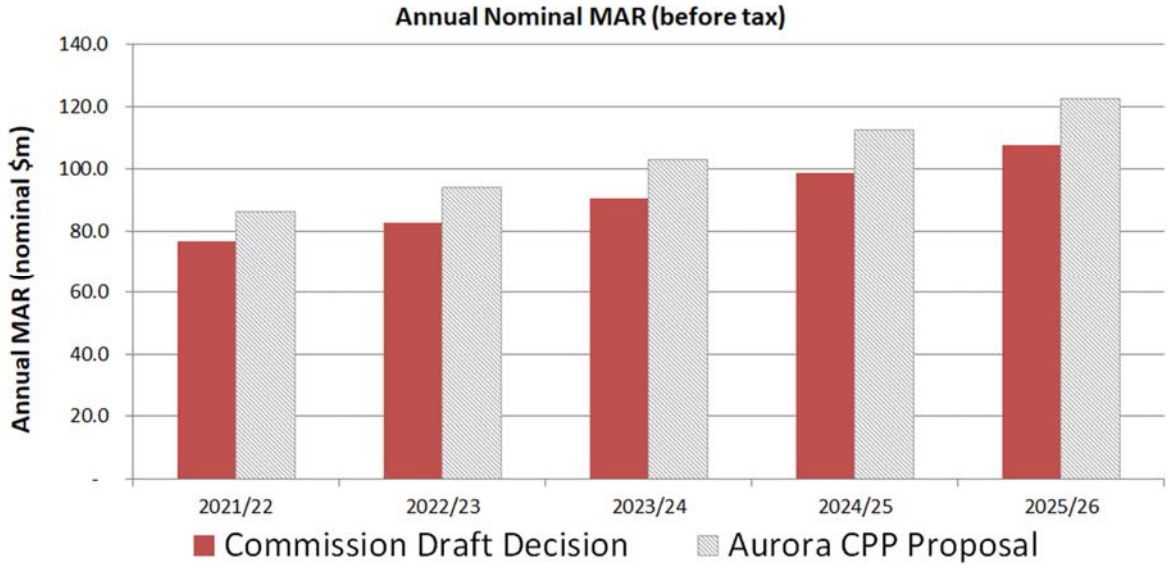
G81 Our draft reductions in proposed expenditure and changes to the escalators and exchange rates have combined to reduce this to $453.9 million for the five-year CPP period. This is a $62.3 million reduction in the nominal building blocks allowable revenue, or around 12.1%.

Figure G10 Change in Annual Nominal building blocks allowable revenue



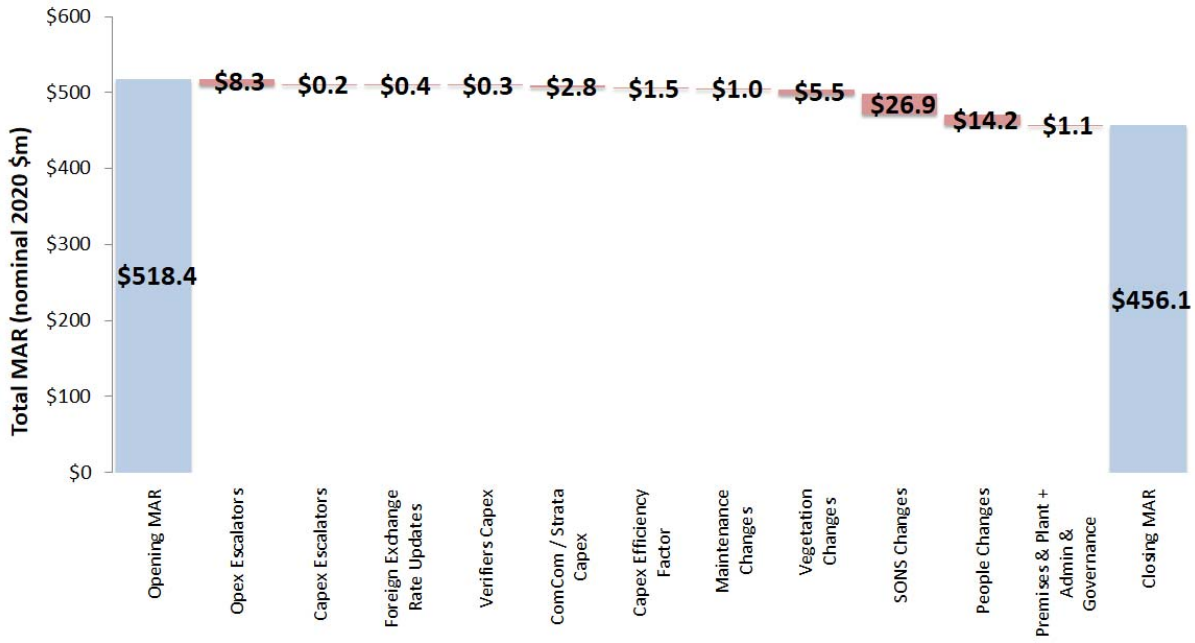
G82 The combined impact of these changes on Aurora's pre-tax five-year maximum allowable revenue was $62.2 million, or around $12.4 million on an annual basis. This is illustrated below in Figure G11, which is based on Aurora's proposed X-factor of -7%.

Figure G11 Change in annual nominal maximum allowable revenue



G83 Figure G12 shows how each of the adjustments discussed earlier have reduced the five-year pre-tax maximum allowable revenue in nominal terms.

Figure G12 Adjustments to Aurora's five-year total maximum allowable revenue in nominal terms



Forecast Opex IRIS recoverable amounts

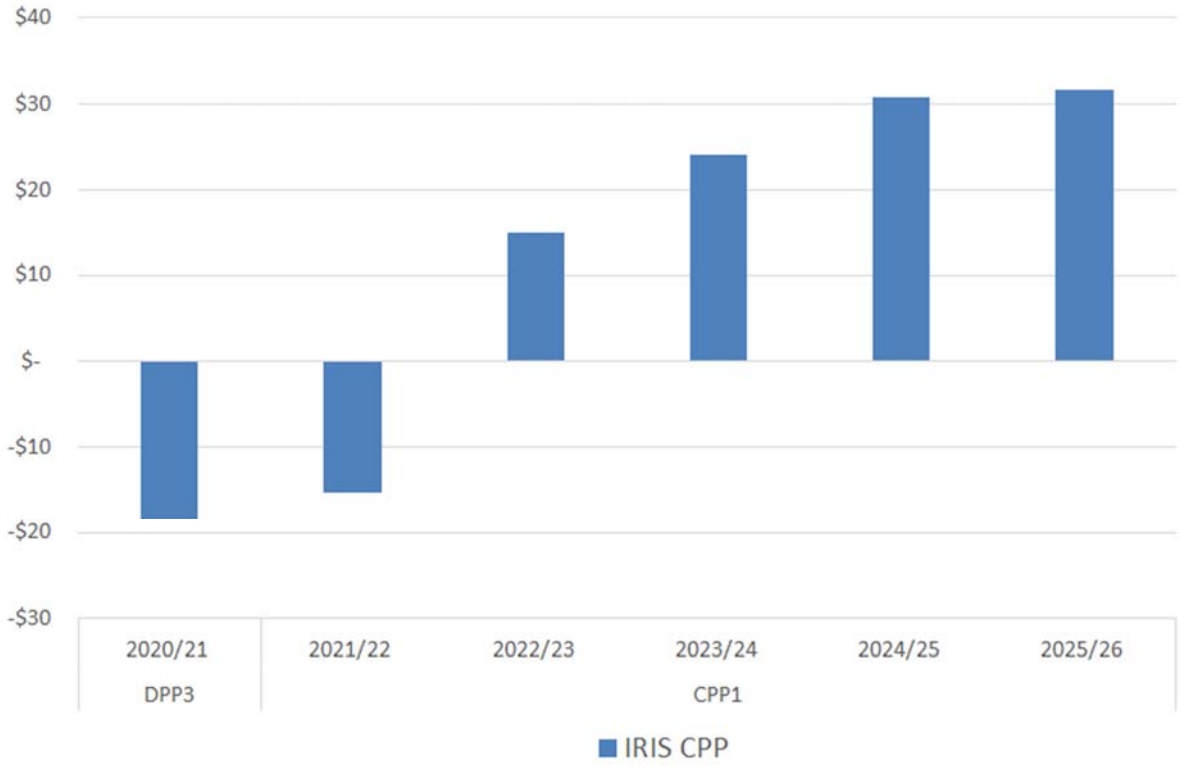
G84 The transition from DPP3 to a CPP for Aurora results in various adjustments being made to the IRIS incentives.[587] This is primarily associated with the opex IRIS. This has the effect of reversing previous IRIS penalties that Aurora would have encountered under DPP3 and produces positive recoverable amounts during Aurora's CPP period.

G85 Figure G13 shows the profile of the opex IRIS in the CPP period. The opex IRIS for the CPP period has a $15 million negative incentive in the first year, followed by rising opex IRIS recoverable amounts.[588]

[587] Refer to Attachment F.

[588] Refer to Attachment F, Figure F3.

Figure G13 Nominal Opex IRIS recoverable amounts in the CPP period



G86 The opex IRIS profile under the CPP causes difficulties in smoothing revenues. This is because the opex IRIS sits outside the maximum allowable revenue, which means using the X-factor will not work as a revenue smoothing tool.

G87 This is why our draft decision is to smooth revenue at an aggregate level by introducing maximum limits to the percentage increases in Aurora's total forecast allowable revenue.

G88 The capex IRIS mechanism is applied in the same way in either a DPP or a CPP. Aurora's capex IRIS negative incentive is approximately $1.3 million per annum until 2024-2025, so it does not have a significant influence on the setting of the price path.

Other recoverable amounts and pass-through costs

G89 In order to understand and forecast total forecast allowable revenue, we have had to forecast other recoverable costs and pass-through costs. This includes items such as transmission costs and local authority rates.

G90 We have broadly adopted the decisions on recoverable costs from the DPP3 decisions in that regard. Although we have made no explicit decision to make changes to the DPP3 decisions on recoverable costs, we have made minor changes to the drafting in the draft CPP determination to reflect the change from a DPP to a CPP and to reflect the timing of the CPP period. Other recoverable costs that we have included in the draft CPP determination under our draft decision are:

G90.1 the opex incentive amount;

G90.2 the capex incentive amount;

G90.3 avoided transmission charges;

G90.4 the CPP application fee paid by Aurora to the Commission;

G90.5 the CPP application assessment fee payable by Aurora to the Commission;

G90.6 the Verifier's fee;

G90.7 the independent auditor's fee in respect of Aurora's CPP application;

G90.8 the extended reserves allowance; and

G90.9 the quality incentive adjustment.[589]

G91 We reviewed Aurora's forecasts of these items against historical actuals to ensure they are fair and reasonable, as follows:

G91.1 Transmission forecasts were reviewed against our understanding of how last year's Transpower IPP reduced Transpower's revenues. These forecasts were reasonable;

G91.2 The forecasts of the distributed generation allowance are a close approximation to historical values and the growth associated with them;[590]

G91.3 Local authority rates and industry levies were individually volatile, but the combined total bore a close approximation to historical actuals;

G91.4 There is a $1.6 million estimate for costs associated with the CPP application (the Verifier, PWC audit and our assessment costs), which is comparable to other CPPs; and

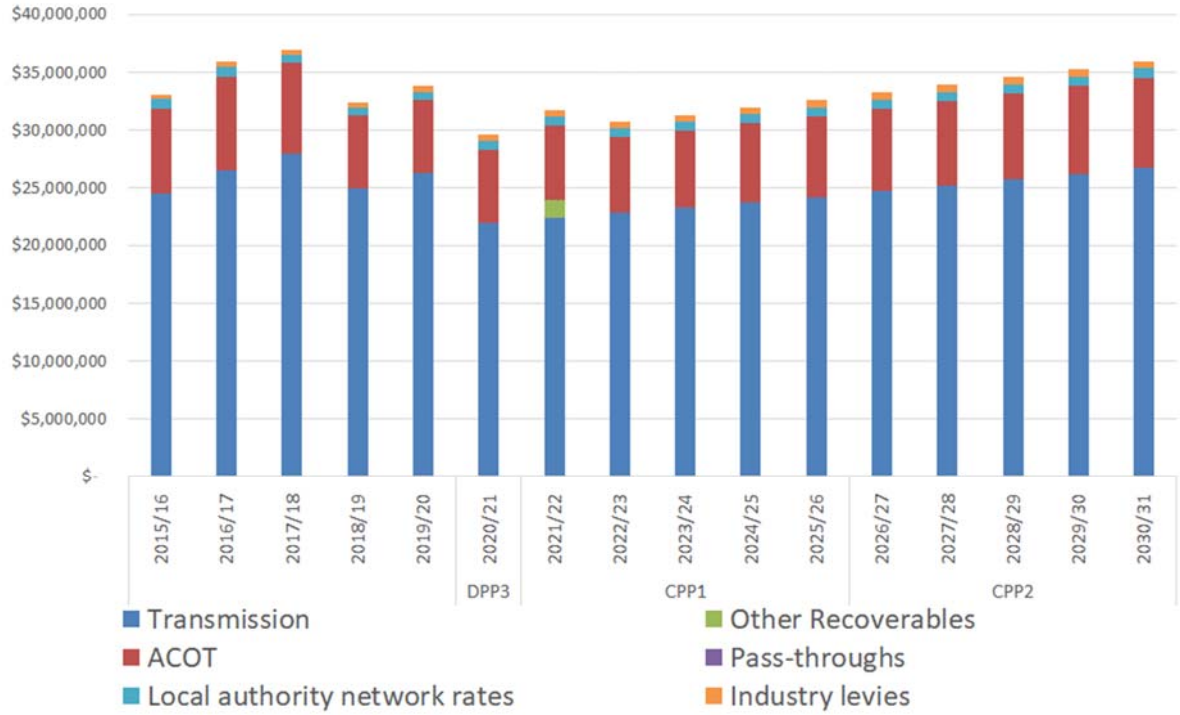
[589] Commerce Commission "[Draft] Aurora Energy Limited Electricity Distribution Customised Price-Quality Path Determination 2021", (12 November 2020) Schedule 2.1.

[590] Distributed generation allowances are amounts that Aurora has avoided liability to pay to Transpower for transmission charges as a result of distributed generation on its network.

G91.5 There are no forecasted allowances for innovation allowances and Aurora has advised us that it does not intend to separately apply for innovation allowances in the CPP period.

G92 Figure G14 is a summary of these forecasts.

Figure G14 Nominal recoverable costs and pass-through costs - excluding IRIS items



G93 These are only forecasts and they rely on matters outside of our control. For example, the outcomes of the review of the Transmission Pricing Methodology (TPM) by Transpower and the Electricity Authority. However, variances between these forecasts and actual amounts incurred by Aurora will eventually be washed up through the revenue wash-up mechanism.

Revenue Wash-up Balance

G94 Smoothing revenues may result in a revenue wash-up balance being accrued in the CPP period that will have to be recovered in a later regulatory period. Any balance in the wash-up account earns the cost of capital to ensure that the time value of money is maintained. Any revenue smoothing has to manage this and try to avoid an excessive balance being built up in the wash-up account that cannot be recovered in future periods by Aurora.

G95 There are some implications from capping the maximum percentage changes in forecast allowable revenues if pass-through costs and recoverable costs change materially during the regulatory period. For example, if the changes proposed to the Electricity Authority by Transpower for the TPM reduce or increase Aurora's transmission charges.

G96 If there is a large enough reduction in pass-through costs and recoverable costs, the cap on the percentage increase in revenue will cease to bind and the price path will come down. If the cap on the percentage increase in revenue continues to bind even though these costs materially reduce, then the price path will not change but the wash-up balance will reduce and possibly clear earlier.

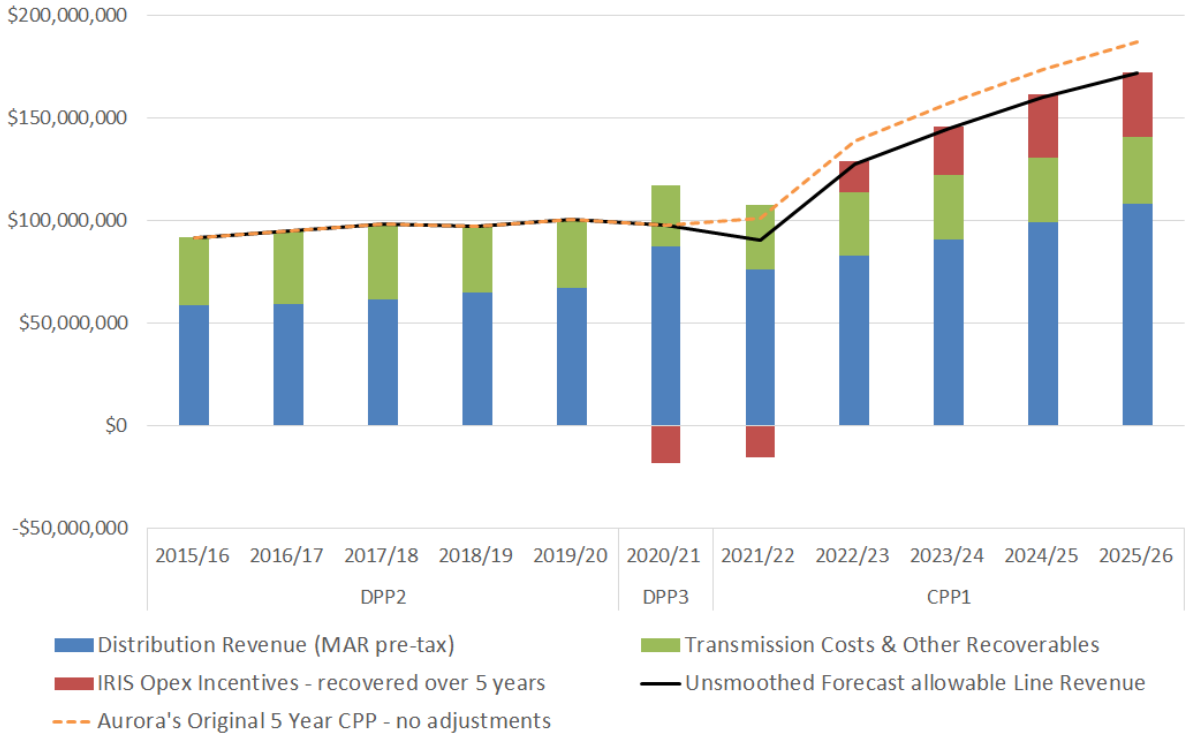
G97 The wash-up mechanism and the cap on the maximum percentage change in forecast allowable revenues, as apply to electricity lines companies for DPP3, are discussed in more detail in our November 2019 reasons paper for the DPP3 decision.[591]

Total Forecast Allowable Revenue

G98 Based on the adjustments we have made to Aurora's CPP application and the forecasts of other revenue components, we have developed an annual forecast allowable revenue – as set out in Figure G15. We have assumed the wash-up balance is nil for this forecast and the X Factor is at -7%.

[591] Commerce Commission "Default price-quality paths for electricity distribution businesses from 1 April 2020 - Final decision" (27 November 2019), Attachment H.

Figure G15 Aurora's actual revenue and forecast allowable revenue



G99 The overall increase in forecast allowable revenue between assessment period 2020 to the end of the CPP period in assessment period 2026 is 75.7%.

G100 The forecast allowable revenue is heavily influenced by the opex IRIS amounts. They are significant in scale; -$15 million in the first year, before becoming +$31.5 million by the last year of the CPP period. On an unsmoothed price path basis this would have the benefit of being a buffer in the first year of the CPP period in terms of moderating total revenue increases. However, as the IRIS amounts turn from revenue penalties to incentive amounts and the resulting maximum allowable revenue increases, there are sizable increases in the allowable revenues in years two to five of the CPP period. This presents issues for how we approach revenue smoothing.

Our proposed approach to revenue smoothing

G101 As described earlier, we propose a combination of measures to smooth Aurora's revenues in order to smooth the price shock for consumers:

G101.1 Adjust the X-factor applied to the maximum allowable revenue in Aurora's five-year CPP period; and

G101.2 Apply maximum limits to the percentage increases in Aurora's total annual "forecast allowable revenue".

How we regulate using these mechanisms

G102 Our ability to use the X-factor is provided for under IM clause 5.3.4(6) (see Figure G16).

Figure G16 IM clause 5.3.4(6)

(6) For the purpose of this subpart, the 'maximum allowable revenue before tax' for each **disclosure year** of the **CPP regulatory period** except the first must equal-

$MAR_{y-1} \times (1 + \Delta CPI) \times (1 - X)$,

where-

MAR_{y-1} is the **maximum allowable revenue before tax** in the preceding **disclosure year**;

ΔCPI is the **CPP inflation rate**; and

X is any X factor applying to the **EDB**.

G103 Our ability to apply this price cap to forecast allowable revenue is provided for under IM clause 3.1.1(1)(b) (see figure G17). This gives us the ability to smooth between regulatory periods.

Figure G17 IM clause 3.1.1(1)

3.1.1 Specification and definition of prices

(1) For the purpose of s 53M(1)(a) of the **Act**, the maximum revenues that may be recovered by an **EDB** will be specified in a **DPP determination** or **CPP determination** as a revenue cap, whereby:

(a) **forecast revenue from prices** must not exceed **forecast allowable revenue** for each **disclosure year** of the **regulatory period**; and

(b) the **Commission** may also specify a limit or limits on the annual maximum percentage increase in **forecast revenue from prices**.

Rationale for applying a different X-factor

G104 The forecast allowable revenue is heavily influenced by the opex IRIS incentive amounts. It is $15.3 million in the first year of the CPP period. This means that revenue is restricted from increasing in that year and we would be prevented from using that year for revenue smoothing. This is because IM 3.1.1(1)(a) prevents Aurora's forecast revenues from prices (its actual revenues) from exceeding its forecast allowable revenue (see Figure G18).

Figure G18 IM clause 3.1.1(1)(a)

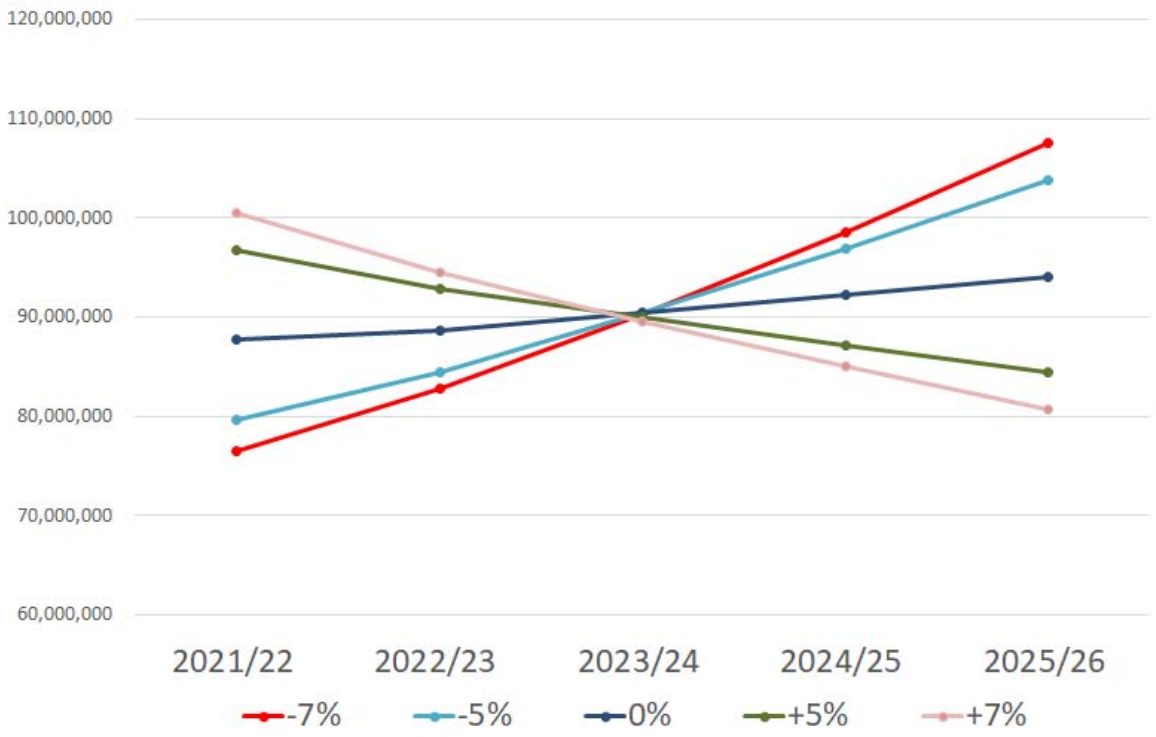
3.1.1 Specification and definition of prices

(1) For the purpose of s 53M(1)(a) of the **Act**, the maximum revenues that may be recovered by an **EDB** will be specified in a **DPP determination** or **CPP determination** as a revenue cap, whereby:

(a) **forecast revenue from prices** must not exceed **forecast allowable revenue** for each **disclosure year** of the **regulatory period**; and

G105 It would also mean that when the annual opex IRIS amount becomes an incentive amount (ie, moves from negative to positive) in year two of the CPP period, coupled with a rising building blocks allowable revenue, allowable revenues would increase significantly from year two onwards of the CPP period.

Figure G19 Illustration of how X-factor can change the trend in Aurora's maximum allowable revenue



G106 As Figure G19 shows, setting a positive X-factor will invert the slope of the maximum allowable revenue path. This increases the maximum allowable revenue in the early years of the CPP period and reduces it in the later years of the CPP period. Setting the X-factor can therefore help counteract the effects of the opex IRIS profile and the rising values of the building blocks allowable revenue.

Rationale for setting maximum limits on percentage changes in total revenue

G107 Setting maximum percentage changes for forecast allowable revenue (in conjunction with the X-factor) ensures pass-through costs and recoverable costs can also be smoothed throughout the CPP period. This can also smooth revenues across multiple regulatory periods by allowing unrecovered revenues in the CPP period to build up and then subsequently be drawn down from the revenue wash-up account. Using the X-factor alone does not provide for this.

G108 The IMs allow us to set individual percentage changes in each year of a regulatory period, providing greater flexibility to smooth out revenue volatility.

G109 If Aurora chooses to revert to a DPP at the end of the CPP period and there is a material amount of under-recovered revenue in the revenue wash-up account, we can still set maximum percentage changes for forecast allowable revenue throughout the DPP to manage revenue smoothing – as per IM clause 3.1.1(1)(b).

Our modelling to understand this approach

G110 To test the possible regulatory settings for Aurora, we forecasted Aurora's CPP and a hypothetical second CPP based on Aurora's CPP application and its 2020 asset management plan. CPP2 is purely for illustrative purposes. For this we have assumed that both regulatory periods are five-year regulatory periods.

G111 Our modelling incorporated the changes we made to Aurora's building blocks allowable revenue and maximum allowable revenue described earlier, alternative X-factors, individual years' percentage revenue cap settings, and the revenue wash-up balance across two consecutive CPP periods. Alternative scenarios were tested to assess how they best met our decision-making framework.

Translating our decision-making framework into possible revenue smoothing scenarios

G112 Five scenarios were developed to test alternate means of revenue smoothing (see Table G4). In these scenarios we assumed Aurora applied for a second CPP given this is its stated intention.

Table G3 Summary of possible modelled scenarios

Scenario Number	Scenario Description	Why we developed this scenario
1	Setting the CPP X-factor at +5% to allow year one revenues of the CPP period to increase relative to year one of DPP3. Specify a 10% per annum revenue cap in the CPP period and assume a 2% per annum revenue cap for a second CPP period.	Aligned to the Issues Paper package option: "I would prefer prices to rise immediately but in gradual and steady increments."
2	Apply an X-factor of +5%, which would hold assessment period 2022 revenue constant. Specify a 5% revenue cap in year one of the CPP period, followed by a 10% per annum revenue cap in years two through five of the CPP period. Assume a 3% per annum revenue cap for a second CPP period.	Aligned to the Issues Paper package option: "I would prefer a smaller price rise in the first year and then larger increases in the following years to give me time to prepare."
3	A 5% per annum revenue increase in both the CPP period and a second CPP period to test how much it is feasible to smooth revenue increases over a longer time period. Apply a +2% X factor.	Aligned to the Issues Paper package option: "I would be willing to pay more in total in order to smooth price increases over a longer period."
4	Revenue increases of 10% to 15% in the CPP period followed by flat revenue increases in a second CPP period. Apply a +7% X-factor.	This is to test what CPP period revenues' increases would be needed to work through the maximum allowable revenue and opex IRIS increases, and to clear the wash-up balance by the end of the CPP period.
5	Smooth the total opex IRIS amount over nine years. Specify a 10% per annum revenue cap in the CPP period and a 2% per annum revenue cap in a second CPP period. Apply a -2% X-factor.	This is to test if there are some additional benefit from smoothing the opex IRIS amounts across two CPP periods.

G113 We developed a base case of Aurora's current CPP proposal to compare against these scenarios and to determine whether there is a need for revenue smoothing. Our base case assumed that the opex IRIS amount would be recovered in the CPP period.[592]

Evaluation of revenue smoothing scenarios

G114 Based on our evaluation against our price path smoothing objectives, we make the following conclusions regarding the base case and the five test scenarios:

The Base Case

G115 The base case showed there is a need for some form of revenue smoothing. There is a relatively high degree of revenue volatility throughout the CPP period due to Aurora's selection of a -7% X-factor and to the profile of the opex IRIS revenue penalties and incentive amounts.

***Scenario 1**: 10% per annum revenue cap in the CPP period and 2% revenue cap in a second CPP period*

G116 Changing the X-factor to +5% in the CPP period would allow annual revenues to increase throughout the CPP period at an annual cap of 10% increase, and at a 2% revenue cap in a second CPP period. This would smooth revenue across both regulatory periods.

G117 The smoothing would create a revenue wash-up balance in the CPP period, but this would be recovered from consumers by the start of assessment period 2030 in a second CPP period. It would also provide a relatively small step off between that second CPP period and the next DPP regulatory period.

G118 We estimate that Aurora would under-recover around $8.8 million more than it was proposing over the course of the CPP period but would be able to recover this amount in its setting of prices for a second CPP period in addition to the deferred revenue of $32 million that it was proposing. This is 1.3% of Aurora's total allowable revenues over the CPP period of around $690 million.

G119 The 10% cap on annual revenue increases is substantial, but it is not above the rate of increase we have traditionally classed as a price shock for consumers, and it only relates to distribution and transmission prices - not the total electricity bill.

G120 We concluded that this scenario should be considered further.

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[592] Aurora sought an IM variation to smooth the impact of the opex IRIS amounts over two regulatory periods. This was based on the original three-year CPP period in Aurora's CPP application plus a second five -year CPP period.

***Scenario 2**: 5% revenue increase in year one of the CPP1 period, then 10% per annum thereafter*

G121 Setting the allowable increase in revenue to 5% and applying a +5% X-factor would hold the forecast allowable revenue constant in year one of the CPP period relative to the previous year. Revenue increases thereafter are set at 10% per annum to the end of the CPP period, and then 3% increases per annum in a second CPP period, when the wash-up balance would be largely cleared.

G122 The drawback of this scenario is that it would defer around $38.5 million of revenue from Aurora in the CPP period or around 5.8% of Aurora's total allowable revenue across the CPP period. These revenues would be recovered in a second CPP period. It would also result in a material step off between revenues at the end of that second CPP period and into the next regulatory period.

G123 We concluded that this scenario also had merit and should be considered further.

***Scenario 3**: A 5% per annum revenue increase in the CPP period and also per annum in a second CPP period*

G124 Changing the X-factor in the CPP period to +2% would allow revenues to increase throughout the CPP period and a second CPP period at 5% per annum.

G125 However, this scenario would result in deferral of around $99 million of revenues from Aurora between the CPP and a second CPP period. It also means there would be a material build-up in the revenue wash-up account.

G126 We concluded this scenario should not be progressed.

***Scenario 4**: Revenue increases of 10% to 15% in CPP1*

G127 Changing the X-factor in the CPP period to +7% would allow revenues to increase throughout the CPP period at between 10% and 15%, followed by an assumed 2% annual allowable revenue increase in a second CPP period.

G128 This scenario would provide Aurora with revenues similar to the base case, the wash-up balance is cleared during the CPP period and there would be no material step off issues into the next regulatory period following that second CPP period. However, it only marginally smoothed revenues and consumers are likely to find the initial increases in the early years of the CPP period unacceptable.

G129 We concluded this scenario should not be progressed.

***Scenario 5**: Smooth IRIS over the CPP period and a second CPP period*

G130 This scenario would smooth the opex IRIS amounts across the CPP period and a second CPP period. The revenue cap profile would allow a 2% increase in year one of the CPP period, followed by 10% for the remainder of the CPP period, and then 5% annual increases for a second CPP period. This is similar to Scenario 2 in that it would leave the first year of the CPP period relatively stable.

G131 This approach would produce a smoothing effect that would be favourable for consumers. In addition, the wash-up balance is estimated to be cleared towards the end of a second CPP period and we do not project any material revenue step into a following regulatory period.

G132 However, it would substantially defer Aurora's allowable revenue compared to the base case; $63 million, or 9.5%, of its CPP period allowable revenues.

G133 We conclude this scenario should not be progressed.

Further consideration of Scenarios 1 and 2

G134 Figure G20 sets out a comparison of Scenario 1 and Scenario 2 under our price path objectives.

Figure G20 Comparison of Scenario 1 and Scenario 2

Objectives	Scenario 1	Scenario 2
Revenue smoothing	✓	✓
Aurora's cashflows	✓	×
Revenue wash-up	✓	✓
Revenue step off	✓	×

G135 Scenario 1 meets more of the price path objectives than Scenario 2. Both scenarios smooth revenue and manage price shock for consumers as a proxy, although Scenario 2 achieves this to a greater extent by spreading the revenue increases over a longer time period.

G136 Other factors that we have considered when comparing these two scenarios are:

G136.1 Our analysis has included the revenue effects of our draft decisions to reduce opex and capex for the CPP period. Because these are still subject to submissions and cross submissions before we finalise our expenditure decisions, it is possible that our decision on the price path may also change. In that respect, we consider that Scenario 1 has more room for flex in our final decisions.

G136.2 Although the price path binds against a 10% per annum cap on the increase in revenue, this scenario seems to have more potential for deferral of extra revenue than Scenario 2 if that was one of the outcomes of our final decision.

G136.3 As noted earlier in this Attachment G, the Transpower transmission charges and other pass-through costs, which are largely outside of Aurora's control, make up approximately one third of Aurora's forecast revenue each year. These amounts must be paid when they are due and this means that any adjustments we make to the revenue cap each year that has the effect of deferring more revenue to a later time will fall on Aurora.

G136.4 Aurora does not have the power to negotiate altered timing for payment of those other amounts. So if we were to select Scenario 2 as a preferred option, the financial pressure on Aurora could materially impact the risk that some work that needs to be done in the CPP period may not be able to be financed.

G137 In our draft decisions we have removed some of the capex that Aurora applied for, but we have proposed a price path reopener mechanism that would allow Aurora to apply for further revenues during the CPP period if defined trigger events occur. This would obviously increase the level of the price path for the remainder of the CPP period, although the impact would be more muted for capex than it would be for opex.

G138 As noted above, Scenario 1 offers more flexibility to allow revenues to increase where they can be justified, but if the revenue cap percentage continues to bind, we see more flexibility to allow revenues to be deferred into a second CPP period than under Scenario 2.

Attachment H Illustrative price impacts

Purpose of this attachment

H1 This Attachment H sets out our forecast of the illustrative price impacts arising from Aurora's CPP after the expenditure adjustments we have made to its CPP proposal and applying our proposed approach to smooth Aurora's maximum allowable revenues across the five-year CPP period. These bill impacts are illustrative for residential consumers that have specific characteristics in each of Aurora's three pricing regions. Actual bill impacts will differ due to different levels of consumption and the time of year given seasonal differences in consumption. All prices and percentage references in this attachment are in nominal terms unless stated otherwise.

H2 This price impact is shown in terms of the change in Aurora's lines charges, which are the combination of all the costs that are included in Aurora's prices (this includes provision for transmission charges and pass-through costs such as levies and local authority rates, which are unaffected by our CPP decision), and the total bill impact for the consumer, which includes all of the components of a delivered electricity charge.

H3 The price impact is presented based on the two revenue smoothing scenarios presented in Attachment G:

H3.1 Scenario 1, which would allow Aurora to recover most of its forecast allowable revenue in the 5-year CPP period (deferring 1.3% into the next regulatory period), and would subject Aurora to a 10% per annum cap on the increase in the annual forecast allowable revenue applied in setting prices each year; and

H3.2 Scenario 2, provides a slightly lower increase in revenue in the transition between the current DPP3 and the CPP period commencing on 1 April 2021, with an initial 5% cap on the increase in the forecast allowable revenue applied in setting prices in year one of the CPP period, followed by a 10% per annum cap on the annual increase for years two through five of the CPP period. This would defer 5.8% of Aurora's forecast allowable revenue.

H4 As explained in Attachment G, we found that Scenario 1 (by a relatively narrow margin) best meets our evaluation criteria and is our draft decision for the price path in the CPP period. However, we also found that Scenario 2 has merit for consultation with stakeholders. Therefore, we present the price impact for both scenarios in this Attachment H.

H5 There is a direct trade-off between the smoothing of revenues (and by implication prices) for consumers and the delaying of revenue recovery for Aurora between Scenarios 1 and 2. We therefore invite stakeholders and Aurora to provide submissions to us on our draft decision to apply Scenario 1 for the CPP period and comment on any reasons why they think Scenario 2 might offer greater benefits or lower risks than Scenario 1.

H6 There is the possibility that these illustrative price changes will change as a consequence of points made in submissions to our draft decision. In addition, we have not yet updated our forecasts for Aurora's actual 2020 capital expenditure which may change our illustrative price changes.

Structure of this Attachment

H7 This Attachment has the following structure:

- H7.1 the unique features of Aurora's pricing;
- H7.2 overview of our approach to modelling illustrative bill impacts;
- H7.3 residential lines' charges illustrative bill impact (for distribution and transmission);
- H7.4 residential illustrative total bill impact (inclusive of energy costs and lines' charges);
- H7.5 comparisons between Scenarios 1 and 2;
- H7.6 summary of our illustrative modelling results;
- H7.7 comparison to Aurora's forecasted price increases;
- H7.8 our approach to modelling price impacts in detail; and
- H7.9 independent review of our pricing model and approach.

The unique features of Aurora's pricing

H8 Aurora's pricing has the following unique features:

- H8.1 Aurora has three distinct pricing regions: Dunedin, Central Otago and Queenstown. The Dunedin region is geographically distinct from the other regions. The Central Otago and Queenstown regions are differentiated by their separate connections to Transpower's grid and the lack of a high voltage interconnection between each other.

H8.2 Each region has separate pricing schedules. Aurora's applies the same pricing methodology amongst its regions and within consumer classes, but because each region has distinct differences in the number of consumers, relative consumer density and the consumer consumption profiles, the price levels between each region are also distinctly different. For example, the Dunedin region is mostly a dense urban network and consequently has lower average prices per connection. Central Otago is more rural, has a lower density of connections, and has higher average prices per connection. Queenstown has a mixture of rural and urban consumers who have a higher average annual consumption.

H8.3 Aurora's pricing only offers residential tariffs that are compliant with the Electricity (Low Fixed Charge Tariff) Regulations 2004 – that is the tariffs have a 15 cents per day fixed charge and the remainder is made up of relatively high kWh consumption charges. The vast majority of EDBs offer a variety of residential tariffs, including a Low Fixed Charge (LFC) tariff required by those Regulations; and

H8.4 The LFC tariff has a relatively high variable kWh consumption tariff with different tariffs for winter and summer. This tariff difference combined with greater consumption in winter produces a large seasonal variation in the size of a residential power bill. For example, higher monthly electricity bills in winter and lower ones in summer. Added to this, Aurora's variable tariffs differ between summer and winter. This makes forecasting Aurora's bill impact on anything other than an annual basis challenging. As such, we have developed the bill impact in this Attachment H using an annual approach. Nevertheless, we also present monthly bill impact to assist stakeholders to understand the change, but we emphasis monthly bills will vary considerably due to these seasonality effects.

Overview of our approach to modelling illustrative bill impacts

H9 Our approach to modelling of Aurora's illustrative bill impacts is:

H9.1 All prices and price movements will be in nominal terms (ie they include forecast increases in inflation) and will include GST, given these are the prices and costs that consumers encounter. This includes applying inflation forecasts to Aurora's transmission pass-through charges and to the energy component of the total electricity bill.

H9.2 We will present the bill impacts in terms of both the Aurora bill impact level and at the total bill impact level – that is the full cost of delivered electricity.

H9.3 This means that bill impacts will be presented at these two different levels:

H9.3.1 the lines component level, which are Aurora's costs that it charges. These include the impact of the CPP decision in terms of Aurora's direct costs and its other pass-through costs and recoverable costs, such as Transpower's transmission charges; and

H9.3.2 the total electricity bill level, which includes Aurora's costs and the retail electricity component.

H9.4 We only present the price impacts for residential consumers. Developing commercial price impacts is problematic given the diverse nature of these consumers.

H9.5 We present the bill impacts using small, medium and large residential consumer profiles. Each profile is based on the actual annual electricity consumption in the three regions; and

H9.6 Bill impacts are represented by changes in annual costs. We do not attempt to address the seasonality of bills throughout the year, but we do present average monthly amounts for the lines component and the total electricity bill.

H10 Our approach does not account for any external impacts on Aurora's prices like changes to the Transmission Pricing Methodology (TPM), which is currently under development between Transpower and the Electricity Authority. There are also a number of other factors outside of the scope of the Commission's decision that mean consumers' price experience in reality will differ from our estimates. For example, wholesale or generation costs may fluctuate due to market conditions, and we only control the network revenues Aurora may recover from its customers.

H11 We also assume that Aurora's pricing methodology will not change, although we understand Aurora has updated its cost allocation methodology and intends to review its pricing methodology in the coming years.

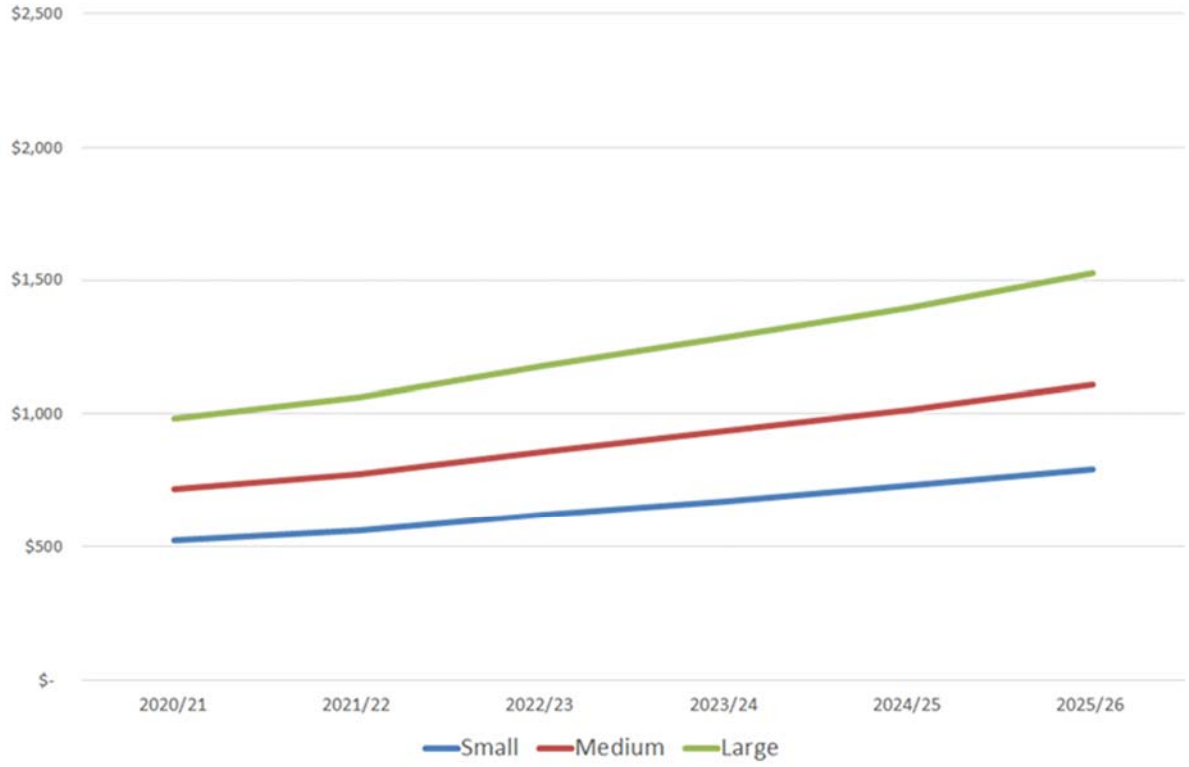
H12 We describe our modelling approach in more detail later in this Attachment H.

Residential lines charges bill impact (for distribution and transmission)

H13 Based on Scenario 1 in Attachment G, lines' charges represent all of Aurora's costs and include its direct costs of electricity distribution and its other pass-through costs and recoverable costs, such as local authority rates and transmission charges from Transpower. The nominal increases in Aurora's annual lines' charges (including GST) for each residential profile in each region are forecasted as follows. Note that these include a forecast CPI increase in transmission charges and other pass-through costs:

H13.1 **Dunedin: Scenario 1** would result in an 9.0%[593] compound average growth in lines' charges from 2020-2021 to 2025-2026.[594] See Figure H1. This would produce a total increase in annual lines' charges of around 54% by 2025-2026. We estimate that annual lines' charges will rise by $270 for smaller consumers and $540 for larger consumers by 2025-2026.

Figure H1 Scenario 1: Dunedin Residential Annual Lines' Charges

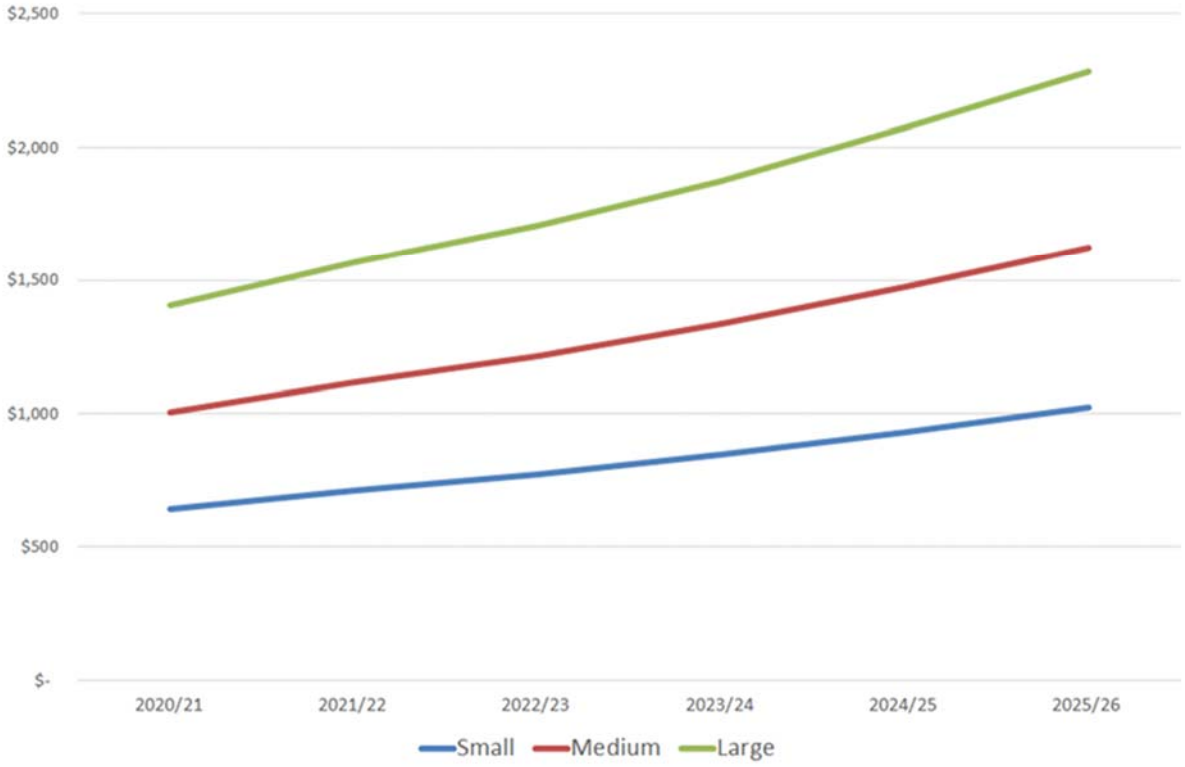


H13.2 **Central Otago: Scenario 1** would result in a 10% compound average growth in lines' charges from 2020-2021 to 2025-2026. See Figure H2. This would produce a total increase in annual lines' charges of around 61% by the end of the CPP period in 2025-2026. We estimate that annual lines' charges would rise by $380 for smaller consumers and $875 for larger consumers by 2025-2026.

[593] Each region's residential consumers are forecast to encounter slightly different price increases. This is due to how costs are allocated between the three regions, but also how costs are allocated amongst commercial and industrial consumers.

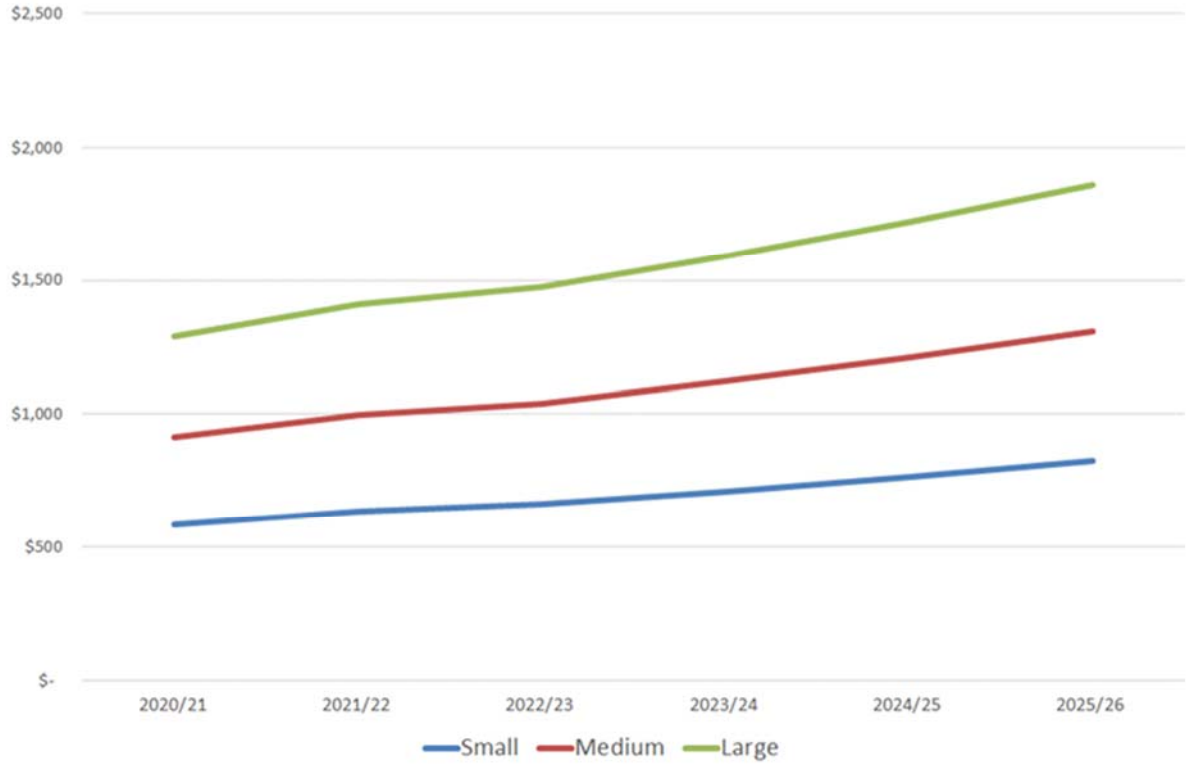
[594] Given the LFC tariff has a high variable charge, there is very little variation in the increase in compound average growth rate between customer classes.

Figure H2 Scenario 1: Central Otago Residential Annual Lines' Charges



H13.3 **Queenstown: Scenario 1** would result in a 7.5% compound average growth in lines' charges from 2020-2021 to 2025-2026. See Figure H3. This would produce a total increase in annual lines' charges of around 43% by the end of the CPP period in 2025-2026. We estimate that annual lines' charges would rise by $240 for smaller consumers and $570 for larger consumers by 2025-2026.

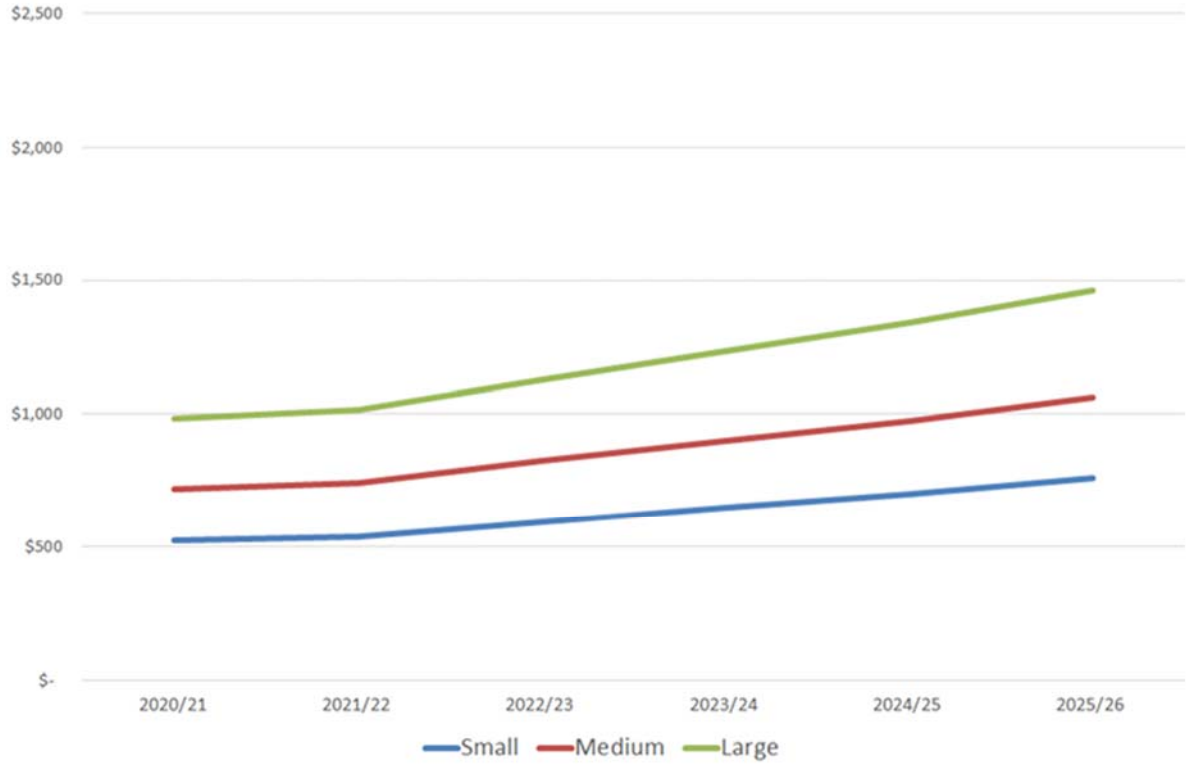
Figure H3 Scenario 1: Queenstown Residential Annual Lines' Charges



H14 Based on Scenario 2 in Attachment G: The estimated nominal increases in annual lines' charges (including GST for each residential profile in each region are):

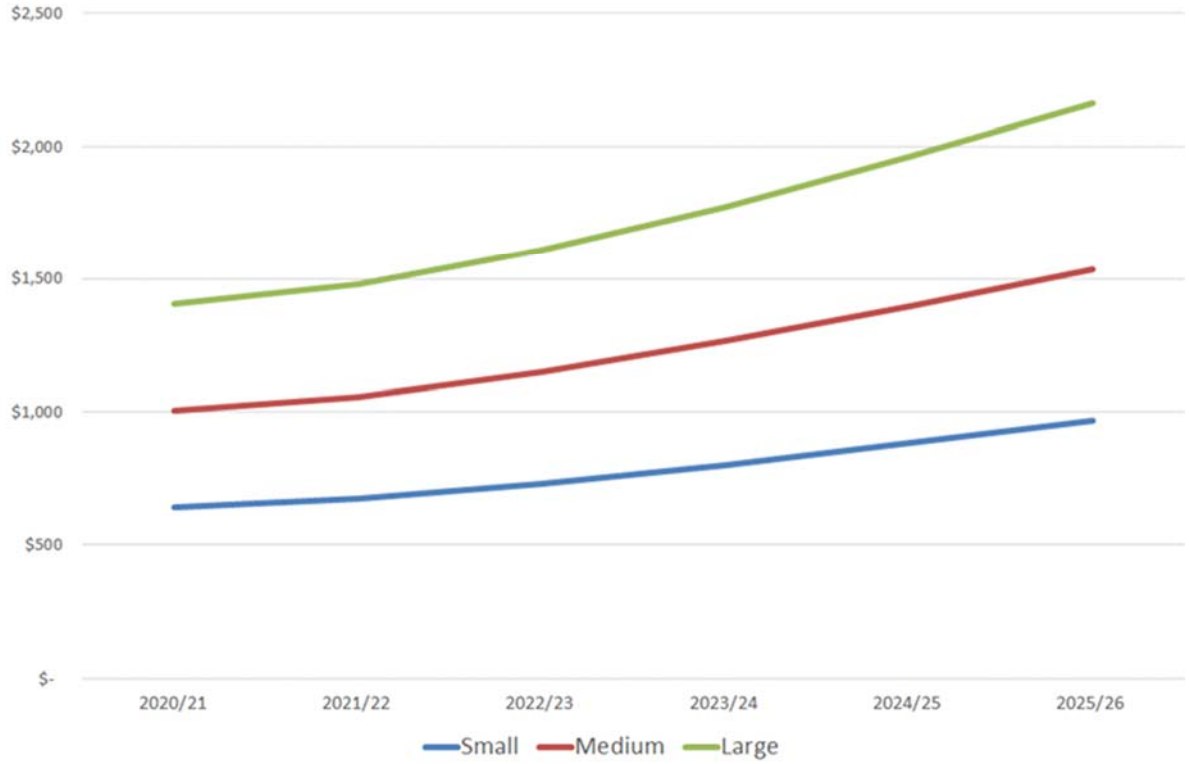
H14.1 **Dunedin: Scenario 2** would result in an 8.1% compound average growth in lines' charges from 2020-2021 to 2025-2026. See Figure H4. This would produce a total increase in annual lines' charges of around 47% by the end of the CPP period in 2025-2026. We estimate that annual lines' charges would rise by $240 for smaller consumers and $480 for larger consumers by 2025-2026.

Figure H4 Scenario 2: Dunedin Residential Annual Lines' Charges



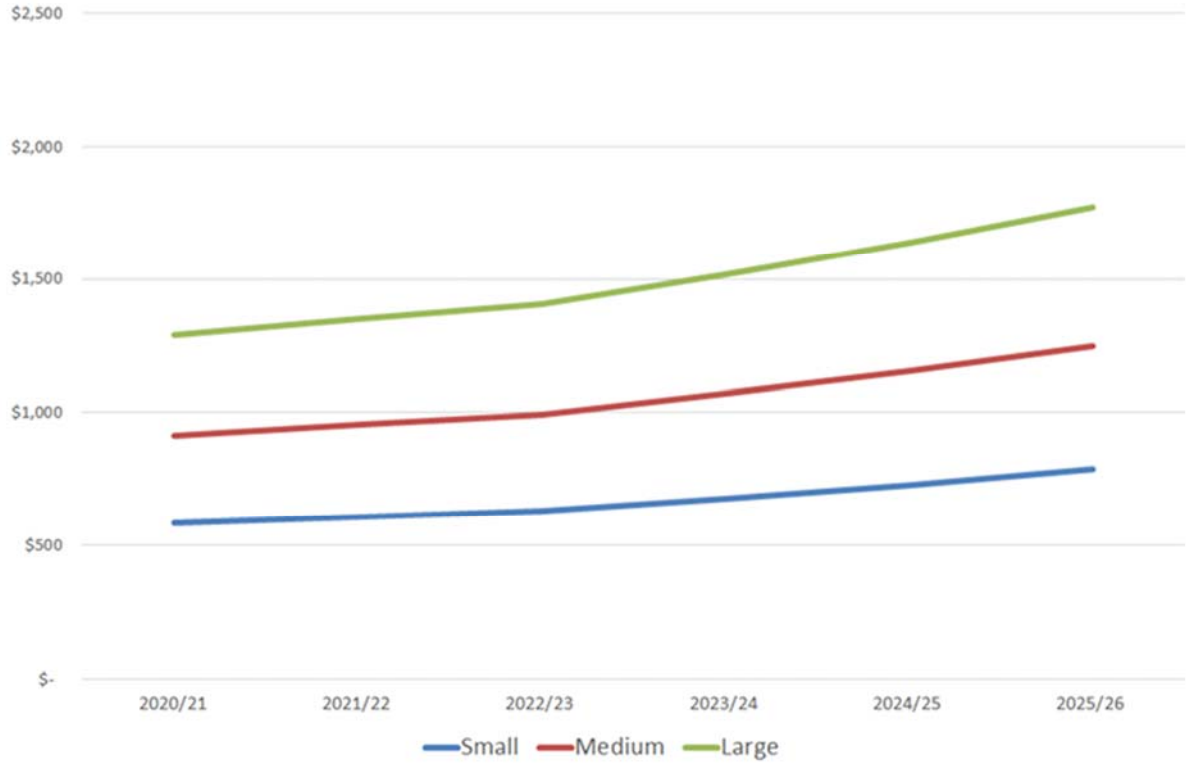
H14.2 **Central Otago: Scenario 2** would result in an 8.8% compound average growth in lines' charges from 2020-2021 to 2025-2026. See Figure H5. This would produce a total increase in annual lines' charges of around 52% by the end of the CPP period in 2025-2026. We estimate that annual lines' charges would rise by $325 for smaller consumers and $750 for larger consumers by 2025-2026.

Figure H5 Scenario 2: Central Otago Residential Annual Lines' Charges



H14.3 **Queenstown: Scenario 2** would result in a 6.5% compound average growth in lines' charges from 2020-2021 to 202-2026. See Figure H6. This would produce a total increase in annual lines' charges of around 36% by the end of the CPP period in 2025-2026. We estimate that annual lines' charges would rise by $200 for smaller consumers and $480 for larger consumers by 2025-2026.

Figure H6 Scenario 2: Queenstown Residential Annual Lines' Charges



Residential total illustrative bill impact (inclusive of energy costs and lines' charges)

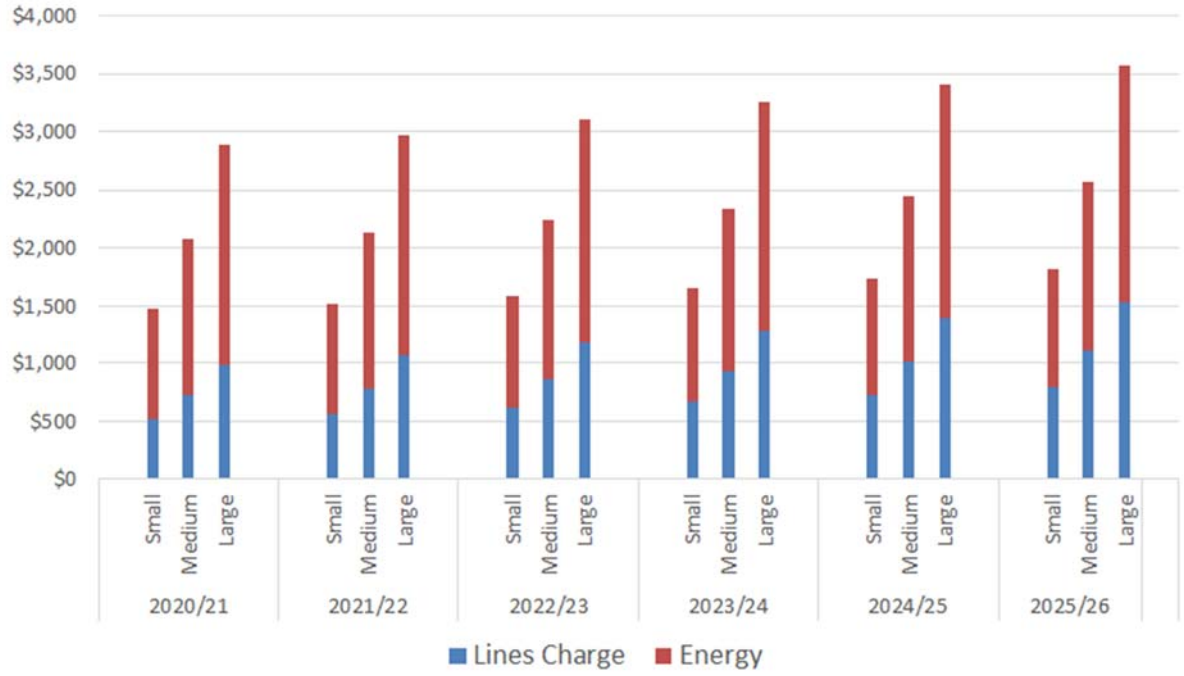
H15 To estimate the total bill impact inclusive of energy costs, we forecasted the total residential consumer energy bill impact based on the movements in lines' charges and added MBIE's energy component that it ascribes to each of Aurora's regions in its QSDEP data series.

H16 These charges are then applied to the same profiles of small, medium and large residential consumers in each region as we did for the lines' charges above. They represent a broad estimate of all remaining retailer costs. For our forecast, we have assumed that these would increase at the rate of CPI used in Aurora's CPP models.

H17 Based on Scenario 1 in Attachment G, the nominal increases in total electricity bills (including GST) for each residential profile in each region are forecast as follows:

H17.1 **Dunedin: Scenario 1** would result in a 4.4% compound average growth in the total electricity bill (inclusive of energy costs and lines' charges) from 2020-2021 to 2025-2026. See Figure H7. This would produce a total increase in an annual electricity bill of around 24% by the end of the CPP period in 2025-2026.

Figure H7 Scenario 1: Dunedin Total Bill Impact



H17.2 We estimate that the total annual electricity bill would rise by $350 for smaller consumers and $690 for larger consumers by 2025-2026 as shown in Table H1 below. The monthly bills and the change in monthly bill relative to 2020-2021 are presented in Tables H2 and H3.

Table H1 Scenario 1: Dunedin Total Annual Bill

Dunedin Residential Consumers	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26
Small Consumer Profile	$ 1,472	$ 1,516	$ 1,585	$ 1,658	$ 1,735	$ 1,818
Medium Consumer Profile	$ 2,075	$ 2,139	$ 2,238	$ 2,342	$ 2,451	$ 2,571
Large Consumer Profile	$ 2,880	$ 2,970	$ 3,108	$ 3,253	$ 3,407	$ 3,574

Table H2 Scenario 1: Dunedin Total Monthly Bill

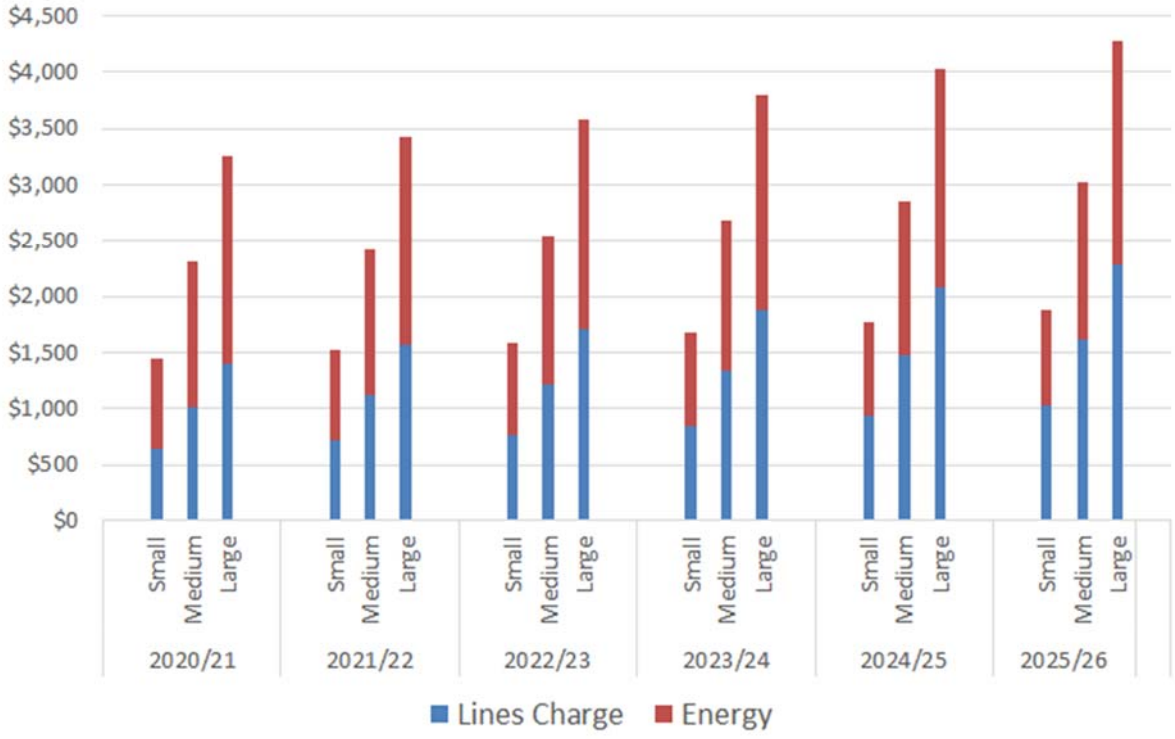
Dunedin Residential Consumers	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26
Small Consumer Profile	$ 123	$ 126	$ 132	$ 138	$ 145	$ 152
Medium Consumer Profile	$ 173	$ 178	$ 186	$ 195	$ 204	$ 214
Large Consumer Profile	$ 240	$ 247	$ 259	$ 271	$ 284	$ 298

Table H3 Scenario 1: Dunedin Year on Year Change in Total Monthly Bill relative to 2020-2021[595,596]

Dunedin Residential Consumers	2021/22	2022/23	2023/24	2024/25	2025/26
Small Consumer Profile	$ 3.70	$ 9.40	$ 15.50	$ 21.90	$ 28.90
Medium Consumer Profile	$ 5.30	$ 13.50	$ 22.20	$ 31.30	$ 41.20
Large Consumer Profile	$ 7.50	$ 19.00	$ 31.20	$ 44.00	$ 57.90

H17.3 **Central Otago: Scenario 1** would result in a 5.6% compound average growth in the total electricity bill (inclusive of energy costs and lines' charges) from 2020-2021 to 2025-2026. See Figure H8. This would produce a total increase in an annual electricity bill of around 31% by the end of the CPP period in 2025-2026.

Figure H8 Scenario 1: Central Otago Total Bill Impact



[595] These illustrative price changes have been rounded to the nearest ten cents.

[596] The table below sets out the estimated increase in years 1 and 5 of Aurora's CPP in monthly terms (nominal and GST inclusive). These amounts are not additive. Using Dunedin small users as an example: "the $3.70 increase in Year 1 does not add to the $28.90 increase in Year 5. Both numbers are expressed relative to what consumers pay relative to 2020-2021 prices". This applies to the other tables that show the change in monthly bills relative to 2020-2021.

H17.4 We estimate that the total annual electricity bill would rise by $440 for smaller consumers and $1,020 for larger consumers by 2025-2026 as shown in Table H4 below. The monthly bills and the change in monthly bill relative to 2020-2021 are presented in Tables H5 and H6.

Table H4 Scenario 1: Central Otago Total Annual Bill

Central Otago Residential Consumers	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26
Small Consumer Profile	$ 1,443	$ 1,517	$ 1,586	$ 1,676	$ 1,778	$ 1,885
Medium Consumer Profile	$ 2,306	$ 2,426	$ 2,538	$ 2,684	$ 2,850	$ 3,023
Large Consumer Profile	$ 3,255	$ 3,425	$ 3,585	$ 3,793	$ 4,029	$ 4,276

Table H5 Scenario 1: Central Otago Total Monthly Bill

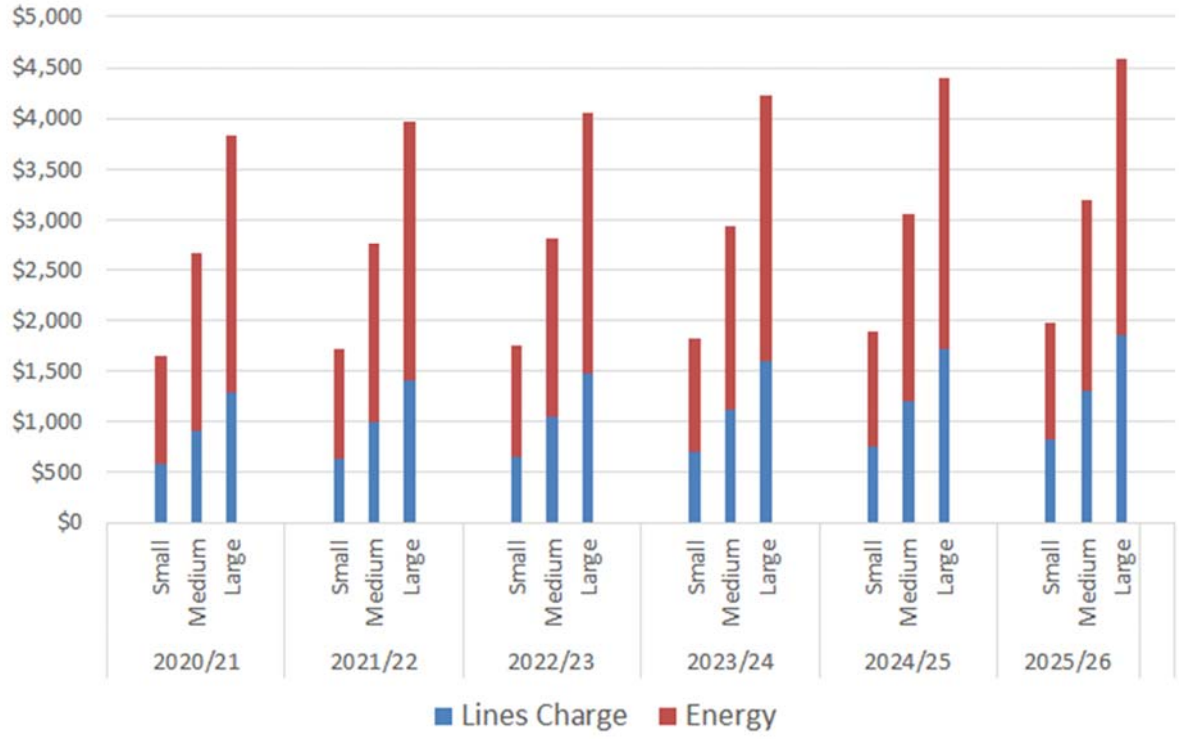
Central Otago Residential Consumers	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26
Small Consumer Profile	$ 120	$ 126	$ 132	$ 140	$ 148	$ 157
Medium Consumer Profile	$ 192	$ 202	$ 211	$ 224	$ 237	$ 252
Large Consumer Profile	$ 271	$ 285	$ 299	$ 316	$ 336	$ 356

Table H6 Scenario 1: Central Otago Year on Year Change in Total Monthly Bill relative to 2020-2021

Central Otago Residential Consumers	2021/22	2022/23	2023/24	2024/25	2025/26
Small Consumer Profile	$ 6.10	$ 11.90	$ 19.40	$ 27.90	$ 36.80
Medium Consumer Profile	$ 10.00	$ 19.40	$ 31.60	$ 45.40	$ 59.90
Large Consumer Profile	$ 14.20	$ 27.60	$ 44.90	$ 64.60	$ 85.20

H17.5 **Queenstown: Scenario 1** would result in a 3.7% compound average growth in the total electricity bill (inclusive of energy costs and lines' charges) from 2020-2021 to 2025-2026. See Figure H9. This would produce a total increase in an annual electricity bill of around 20% by the end of the CPP period in 2025-2026.

Figure H9 Scenario 1: Queenstown Total Bill Impact



H17.6 We estimate that the total electricity bill would rise by $325 for smaller consumers and $770 for larger consumers by 2025-2026 shown in Table H7 below. The monthly bills and the change in monthly bill relative to 2020-2021 are presented in Tables H8 and H9.

Table H7 Scenario 1: Queenstown Total Annual Bill

Queenstown Residential Consumers	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26
Small Consumer Profile	$ 1,655	$ 1,713	$ 1,752	$ 1,821	$ 1,898	$ 1,981
Medium Consumer Profile	$ 2,668	$ 2,763	$ 2,826	$ 2,940	$ 3,066	$ 3,201
Large Consumer Profile	$ 3,825	$ 3,962	$ 4,055	$ 4,219	$ 4,400	$ 4,596

Table H8 Scenario 1: Queenstown Total Monthly Bill

Queenstown Residential Consumers	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26
Small Consumer Profile	$ 138	$ 143	$ 146	$ 152	$ 158	$ 165
Medium Consumer Profile	$ 222	$ 230	$ 236	$ 245	$ 255	$ 267
Large Consumer Profile	$ 319	$ 330	$ 338	$ 352	$ 367	$ 383

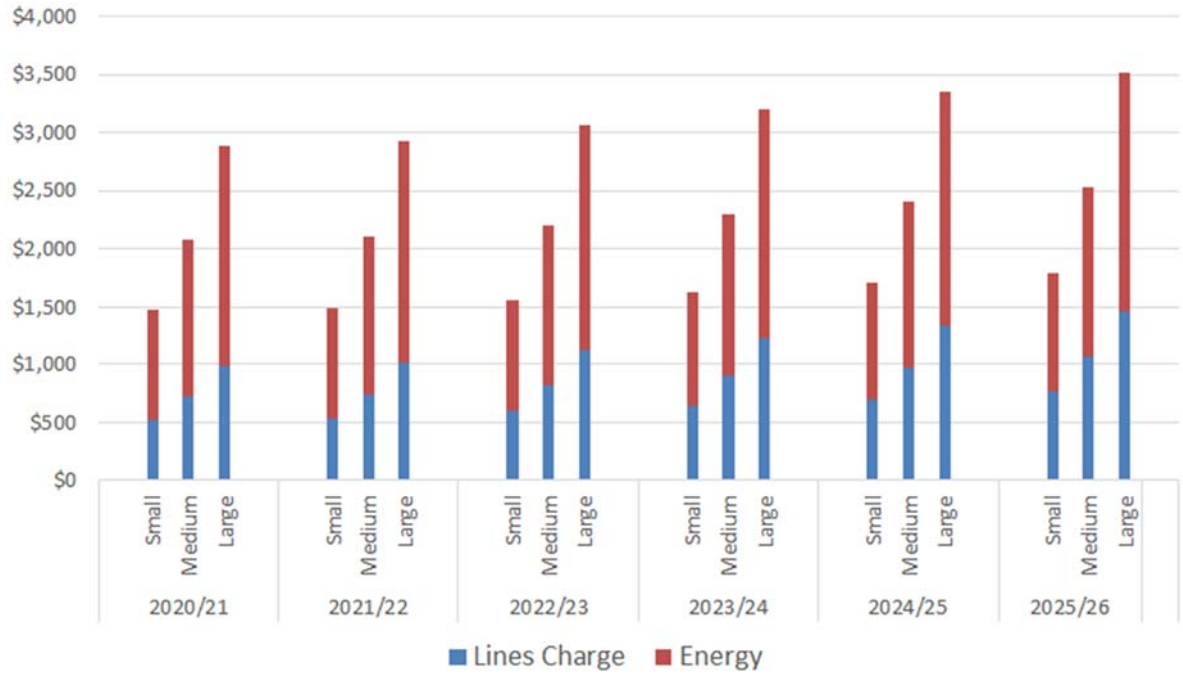
Table H9 Scenario 1: Queenstown Year on Year Change in Total Monthly Bill relative to 2020-2021

Queenstown Residential Consumers	2021/22	2022/23	2023/24	2024/25	2025/26
Small Consumer Profile	$ 4.80	$ 8.10	$ 13.90	$ 20.30	$ 27.20
Medium Consumer Profile	$ 7.90	$ 13.20	$ 22.70	$ 33.10	$ 44.40
Large Consumer Profile	$ 11.40	$ 19.10	$ 32.80	$ 47.90	$ 64.20

H18 Based on Scenario 2 in Attachment G: The nominal increases in total electricity bills (including GST) for each residential profile in each region are forecasted as follows:

H18.1 **Dunedin: Scenario 2** would result in a 4.0% compound average growth in the total electricity bill (inclusive of energy costs and lines' charges) from 2020-2021 to 2025-2026. See Figure H10. This would produce a total increase in an annual electricity bill of around 22% by the end of the CPP period in 2025-2026.

Figure H10 Scenario 2: Dunedin Total Bill Impact



H18.2 We estimate that the total electricity bill will rise by $315 for smaller consumers and $630 for larger consumers by 2025-2026 shown in Table H10 below. The monthly bills and the change in monthly bill relative to 2020/-201 are presented in Tables H11 and H12.

Table H10 Scenario 2: Dunedin Total Annual Bill

Dunedin Residential Consumers	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26
Small Consumer Profile	$ 1,472	$ 1,494	$ 1,561	$ 1,632	$ 1,706	$ 1,786
Medium Consumer Profile	$ 2,075	$ 2,108	$ 2,203	$ 2,304	$ 2,410	$ 2,525
Large Consumer Profile	$ 2,880	$ 2,926	$ 3,059	$ 3,200	$ 3,349	$ 3,510

Table H11 Scenario 2: Dunedin Total Monthly Bill

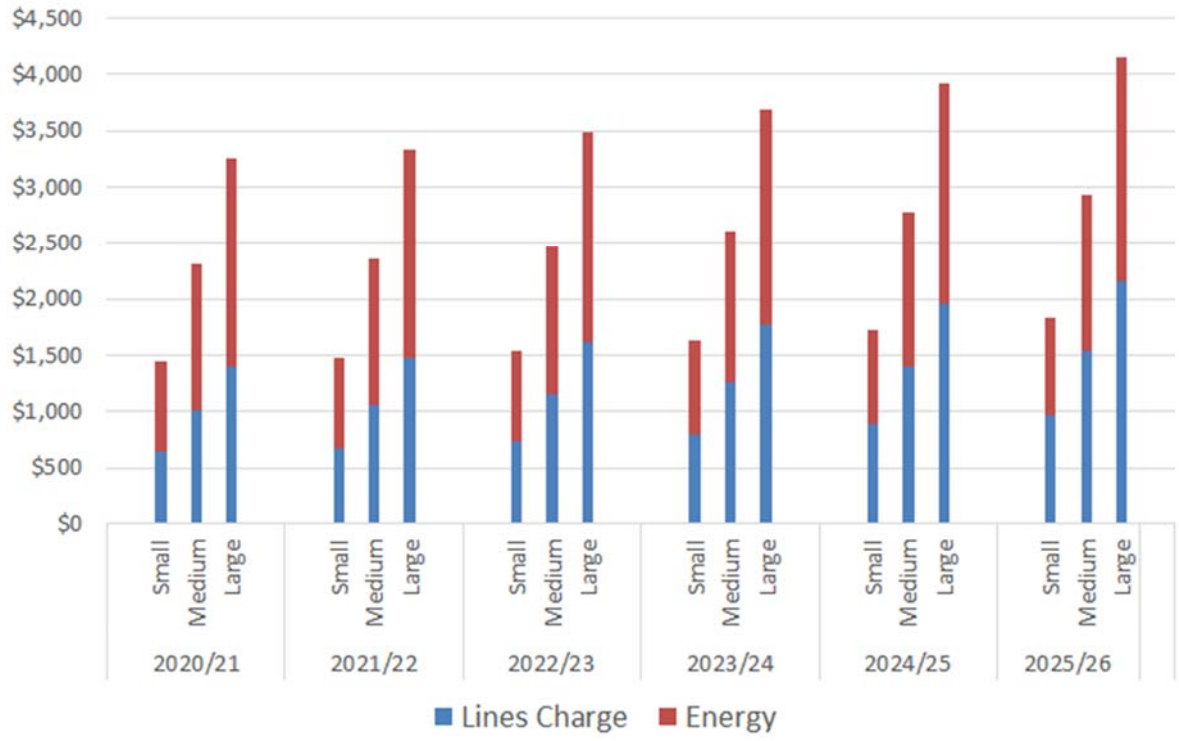
Dunedin Residential Consumers	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26
Small Consumer Profile	$ 123	$ 125	$ 130	$ 136	$ 142	$ 149
Medium Consumer Profile	$ 173	$ 176	$ 184	$ 192	$ 201	$ 210
Large Consumer Profile	$ 240	$ 244	$ 255	$ 267	$ 279	$ 293

Table H12 Scenario 2: Dunedin Annual Year on Year in Total Monthly Bill relative to 2020-2021

Dunedin Residential Consumers	2021/22	2022/23	2023/24	2024/25	2025/26
Small Consumer Profile	$ 1.90	$ 7.50	$ 13.40	$ 19.60	$ 26.30
Medium Consumer Profile	$ 2.70	$ 10.60	$ 19.00	$ 27.80	$ 37.40
Large Consumer Profile	$ 3.80	$ 14.90	$ 26.70	$ 39.10	$ 52.50

H18.3 Central Otago: Scenario 2 would result in a 5.0% compound average growth in the total electricity bill (inclusive of energy costs and line's charges) from 2020-2021 to 2025-2026. See Figure H11. This would produce a total increase in an annual electricity bill of around 27% by the end of the CPP period in 2025-2026.

Figure H11 Scenario 2: Central Otago Total Bill Impact



H18.4 We estimate that the total electricity bill would rise by $390 for a smaller consumer and $900 for a larger consumer by 2025-2026 shown in Table H13 below. The monthly bills and the change in monthly bill relative to 2020-2021 are presented in Tables H14 and H15.

Table H13 Scenario 2: Central Otago Total Annual Bill

Central Otago Residential Consumers	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26
Small Consumer Profile	$ 1,443	$ 1,479	$ 1,545	$ 1,631	$ 1,729	$ 1,832
Medium Consumer Profile	$ 2,306	$ 2,364	$ 2,471	$ 2,611	$ 2,770	$ 2,937
Large Consumer Profile	$ 3,255	$ 3,337	$ 3,490	$ 3,689	$ 3,916	$ 4,153

Table H14 Scenario 2: Central Otago Total Monthly Bill

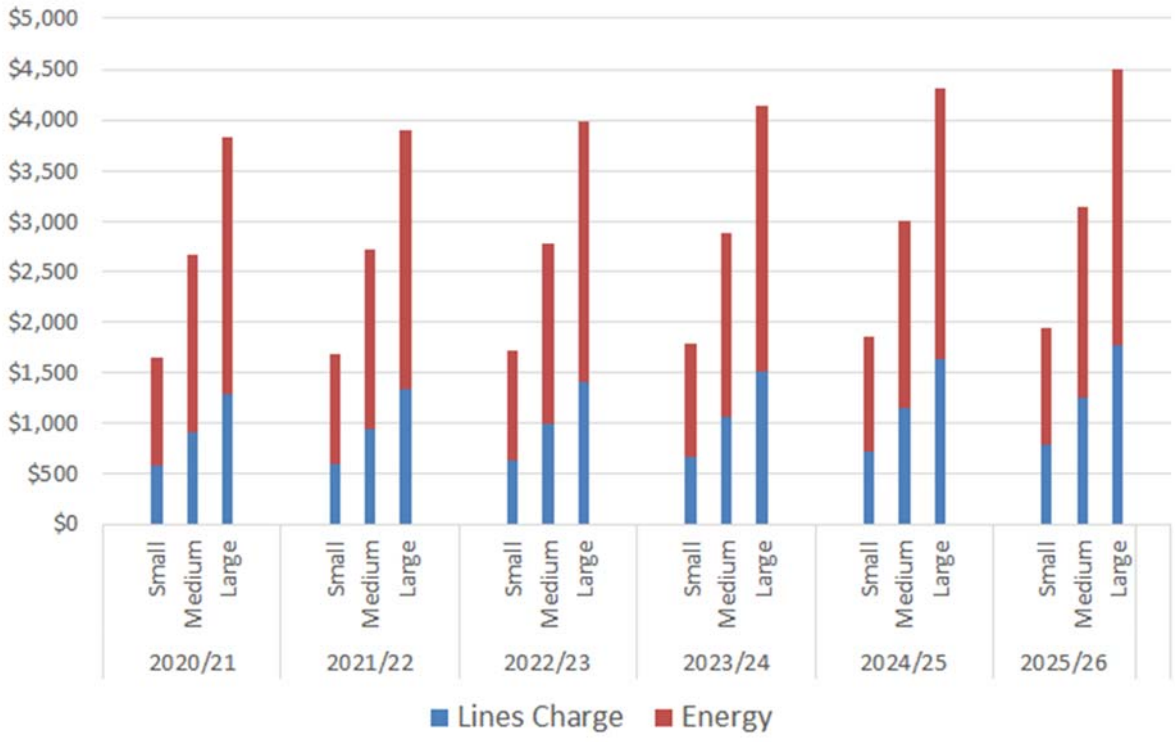
Central Otago Residential Consumers	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26
Small Consumer Profile	$ 120	$ 123	$ 129	$ 136	$ 144	$ 153
Medium Consumer Profile	$ 192	$ 197	$ 206	$ 218	$ 231	$ 245
Large Consumer Profile	$ 271	$ 278	$ 291	$ 307	$ 326	$ 346

Table H15 Scenario 2: Central Otago Year on Year Change in Total Monthly Bill relative to 2020-2021

Central Otago Residential Consumers	2021/22	2022/23	2023/24	2024/25	2025/26
Small Consumer Profile	$ 3.00	$ 8.50	$ 15.70	$ 23.90	$ 32.50
Medium Consumer Profile	$ 4.80	$ 13.70	$ 25.40	$ 38.70	$ 52.60
Large Consumer Profile	$ 6.90	$ 19.60	$ 36.20	$ 55.10	$ 74.90

H18.5 **Queenstown: Scenario 2** would result in a 3.3% compound average growth in the total electricity bill (inclusive of energy costs and lines' charges) from 2020-2021 to 2025-2026. See Figure H12. This would produce a total increase in an annual electricity bill of around 18% by the end of the CPP period in 2025-2026.

Figure H12 Scenario 2: Queenstown Total Bill Impact



H18.6 We estimate that the total electricity bill would rise by $290 for a smaller consumer and $680 for a larger consumer by 2025-2026 shown in Table H16 below. The monthly bills and the change in monthly bill relative to 2020-2021 are presented in Tables H17 and H18.

Table H16 Scenario 2: Queenstown Total Annual Bill

Queenstown Residential Consumers	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26
Small Consumer Profile	$ 1,655	$ 1,686	$ 1,723	$ 1,790	$ 1,864	$ 1,944
Medium Consumer Profile	$ 2,668	$ 2,718	$ 2,779	$ 2,889	$ 3,010	$ 3,141
Large Consumer Profile	$ 3,825	$ 3,899	$ 3,986	$ 4,145	$ 4,320	$ 4,508

Table H17 Scenario 2: Queenstown Total Monthly Bill

Queenstown Residential Consumers	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26
Small Consumer Profile	$ 138	$ 140	$ 144	$ 149	$ 155	$ 162
Medium Consumer Profile	$ 222	$ 227	$ 232	$ 241	$ 251	$ 262
Large Consumer Profile	$ 319	$ 325	$ 332	$ 345	$ 360	$ 376

Table H18 Scenario 2: Queenstown Annual Change in Total Monthly Bill relative to 2020-2021

Queenstown Residential Consumers	2021/22	2022/23	2023/24	2024/25	2025/26
Small Consumer Profile	$ 2.60	$ 5.70	$ 11.30	$ 17.50	$ 24.10
Medium Consumer Profile	$ 4.20	$ 9.20	$ 18.40	$ 28.50	$ 39.40
Large Consumer Profile	$ 6.10	$ 13.40	$ 26.60	$ 41.20	$ 56.90

Comparisons between Scenario 1 and 2

H19 Comparing the two scenarios, Scenario 2 offers a slightly lower increase in total allowable revenue in the first year of the CPP; the 2021-2022 year. Provided below in Table H19 are the differences in total electricity bill at an annual and a monthly level.

Table H19 Differences between Scenario 1 and 2 in Annual and Monthly Total Bills

Dunedin Residential Consumers	Annual Bill	Monthly Bill
Small Consumer Profile	$ (22.10)	$ (1.80)
Medium Consumer Profile	$ (31.50)	$ (2.60)
Large Consumer Profile	$ (44.20)	$ (3.70)

Central Otago Residential Consumers	Annual Bill	Monthly Bill
Small Consumer Profile	$ (38.00)	$ (3.20)
Medium Consumer Profile	$ (61.80)	$ (5.10)
Large Consumer Profile	$ (87.90)	$ (7.30)

Queenstown Residential Consumers	Annual Bill	Monthly Bill
Small Consumer Profile	$ (26.90)	$ (2.20)
Medium Consumer Profile	$ (44.00)	$ (3.70)
Large Consumer Profile	$ (63.60)	$ (5.30)

H20 As shown, the difference between the two scenarios is relatively modest for most regions and consumers.

H21 However, these reduced prices under Scenario 2 will result in a deferral of revenues for Aurora in CPP1. This deferred revenue is forecast to be recovered from its consumers in the second regulatory period. This recovered revenue will also account for the time value of money and keep Aurora 'whole' in a monetary sense. This additional cost over the ten-year forecast period is estimated to cost Aurora's consumers an additional $9.6 million, or around an extra $95 per consumer based on Aurora's forecast consumer numbers by 2025-2026. For context, this is relative to Aurora's total revenue for this period of around $1.4 billion.

H22 This can be compared to taking a payment holiday on a personal loan or mortgage repayments. If payments are deferred into a future period, interest costs will compound meaning the total cost of repayment will be higher than if the payment holiday had not occurred.

Summary of our illustrative modelling results

H23 Scenario 1 would cap Aurora's revenue at a 10% annual increase over the 5-year CPP period. This would result in a 7.5% to 10% annual compounding increase in lines' charges for most consumers. This is forecast to increase residential lines charges (depending on how large the consumer is) over the five years by the following:

- Dunedin: 54% total increase in lines' charges over the five years, or between $270 (small) and $540 (large) per annum by 2025-2026
- Central Otago: 61% total increase in lines' charges over the five years, or between $380 (small) and $875 (large) per annum by 2025-2026
- Queenstown: 43% total increase in lines' charges over the five years, or between $240 (small) and $570 (large) per annum by 2025-2026

H24 Table H20 below provides the increase in Aurora's monthly residential line charge component relative to 2020-2021 starting prices under Scenario 1.

Table H20 Scenario 1: Increase in Total Residential Monthly Lines Component relative to 2020-2021

Dunedin Residential Consumers	2021/22	2022/23	2023/24	2024/25	2025/26
Small Consumer Profile	$ 3.30	$ 8.10	$ 12.60	$ 17.30	$ 22.60
Medium Consumer Profile	$ 4.70	$ 11.60	$ 18.10	$ 24.90	$ 32.40
Large Consumer Profile	$ 6.60	$ 16.30	$ 25.30	$ 34.80	$ 45.40

Central Otago Residential Consumers	2021/22	2022/23	2023/24	2024/25	2025/26
Small Consumer Profile	$ 5.80	$ 10.80	$ 17.00	$ 24.10	$ 31.60
Medium Consumer Profile	$ 9.40	$ 17.50	$ 27.50	$ 39.10	$ 51.30
Large Consumer Profile	$ 13.30	$ 24.90	$ 39.20	$ 55.70	$ 73.00

Queenstown Residential Consumers	2021/22	2022/23	2023/24	2024/25	2025/26
Small Consumer Profile	$ 4.30	$ 6.50	$ 10.50	$ 15.00	$ 20.00
Medium Consumer Profile	$ 7.10	$ 10.80	$ 17.40	$ 24.80	$ 33.00
Large Consumer Profile	$ 10.20	$ 15.50	$ 25.10	$ 35.80	$ 47.60

H25 Scenario 1 represents a 3.7% to 5.6% annual increase in the total electricity bill (inclusive of energy costs and lines' charges) over the five-year CPP period. This is forecast to increase residential total electricity bills (depending on how large the consumer is) over the five-year CPP period by:

Dunedin: 24% in the total electricity bill (inclusive of energy costs and lines' charges), or between $345 (small) and $690 (large) per annum by 2025-2026

Central Otago: 31% in the total electricity bill (inclusive of energy costs and lines' charges), or between $440 (small) and $1,020 (large) per annum by 2025-2026

Queenstown: 20% in the total electricity bill (inclusive of energy costs and lines' charges), or between $325 (small) and $770 (large) per annum by 2025-2026

H26 Table H21 below provides the increase in Aurora's monthly total residential electricity bill relative to 2020-2021 starting prices under Scenario 1.

Table H21 Scenario 1: Increase in Total Residential Monthly Total Electricity Bill relative to 2020-2021

Dunedin Residential Consumers	2021/22	2022/23	2023/24	2024/25	2025/26
Small Consumer Profile	$ 3.70	$ 9.40	$ 15.50	$ 21.90	$ 28.90
Medium Consumer Profile	$ 5.30	$ 13.50	$ 22.20	$ 31.30	$ 41.20
Large Consumer Profile	$ 7.50	$ 19.00	$ 31.20	$ 44.00	$ 57.90

Central Otago Residential Consumers	2021/22	2022/23	2023/24	2024/25	2025/26
Small Consumer Profile	$ 6.10	$ 11.90	$ 19.40	$ 27.90	$ 36.80
Medium Consumer Profile	$ 10.00	$ 19.40	$ 31.60	$ 45.40	$ 59.90
Large Consumer Profile	$ 14.20	$ 27.50	$ 44.80	$ 64.50	$ 85.10

Queenstown Residential Consumers	2021/22	2022/23	2023/24	2024/25	2025/26
Small Consumer Profile	$ 4.80	$ 8.10	$ 13.90	$ 20.30	$ 27.20
Medium Consumer Profile	$ 7.90	$ 13.20	$ 22.70	$ 33.10	$ 44.40
Large Consumer Profile	$ 11.40	$ 19.10	$ 32.80	$ 47.90	$ 64.20

H27 Scenario 2 would cap Aurora's revenues at 5% in the first year of the CPP period, then cap the increase at 10% each year thereafter. This would result in a 6.4% to 8.8% annual compounding increase in lines' charges for most consumers. This is forecast to increase residential lines charges (depending on how large the consumer is) over the five years by the following:

Dunedin:	48% total increase in lines' charges over the five years, or between $240 (small) and $480 (large) per annum by 2025-2026
Central Otago:	52% total increase in lines' charges over the five years, or between $325 (small) and $750 (large) per annum by 2025-2026
Queenstown:	37% total increase in lines' charges over the five years, or between $200 (small) and $480 (large) per annum by 2-25-2026

H28 Table H22 below provides the increase in Aurora's monthly line charge component relative to 2020-2021 starting prices under Scenario 2.

Table H22 Scenario 2: Increase in Total Residential Monthly Lines' Component relative to 2020-2021

Dunedin Residential Consumers	2021/22	2022/23	2023/24	2024/25	2025/26
Small Consumer Profile	$ 1.40	$ 6.10	$ 10.40	$ 14.90	$ 19.90
Medium Consumer Profile	$ 2.10	$ 8.70	$ 14.90	$ 21.40	$ 28.60
Large Consumer Profile	$ 2.90	$ 12.20	$ 20.90	$ 30.00	$ 40.10

Central Otago Residential Consumers	2021/22	2022/23	2023/24	2024/25	2025/26
Small Consumer Profile	$ 2.60	$ 7.30	$ 13.20	$ 20.00	$ 27.20
Medium Consumer Profile	$ 4.20	$ 11.90	$ 21.50	$ 32.50	$ 44.10
Large Consumer Profile	$ 6.00	$ 16.90	$ 30.50	$ 46.20	$ 62.70

Queenstown Residential Consumers	2021/22	2022/23	2023/24	2024/25	2025/26
Small Consumer Profile	$ 2.10	$ 4.20	$ 8.00	$ 12.30	$ 17.10
Medium Consumer Profile	$ 3.40	$ 6.80	$ 13.10	$ 20.20	$ 28.00
Large Consumer Profile	$ 4.90	$ 9.80	$ 18.90	$ 29.10	$ 40.30

H29 Scenario 2 represents a 3.3% to 5.0% annual increase in the total electricity bill (inclusive of energy costs and lines' charges) over five-year CPP period. This is forecast to increase residential total electricity bills (depending on how large the consumer is) over the five-year CPP period by:

- Dunedin: 22% in the total electricity bill (inclusive of energy costs and lines' charges), or between $315 (small) and $630 (large) per annum by 2025-2026
- Central Otago: 27% in the total electricity bill (inclusive of energy costs and lines' charges), or between $390 (small) and $900 (large) per annum by 2025-2026
- Queenstown: 18% in the total electricity bill (inclusive of energy costs and lines' charges), or between $290 (small) and $680 (large) per annum by 2025-2026

H30 Table H23 below provides the increase in Aurora's monthly line charge component relative to 2020-2021 starting prices under Scenario 2.

Table H23 Scenario 2: Increase in Total Residential Monthly Total Electricity Bill relative to 2020-2021

Dunedin Residential Consumers	2021/22	2022/23	2023/24	2024/25	2025/26
Small Consumer Profile	$ 1.90	$ 7.50	$ 13.40	$ 19.60	$ 26.30
Medium Consumer Profile	$ 2.70	$ 10.60	$ 19.00	$ 27.80	$ 37.40
Large Consumer Profile	$ 3.80	$ 14.90	$ 26.70	$ 39.10	$ 52.50

Central Otago Residential Consumers	2021/22	2022/23	2023/24	2024/25	2025/26
Small Consumer Profile	$ 3.00	$ 8.50	$ 15.70	$ 23.90	$ 32.50
Medium Consumer Profile	$ 4.80	$ 13.70	$ 25.40	$ 38.70	$ 52.60
Large Consumer Profile	$ 6.90	$ 19.60	$ 36.20	$ 55.10	$ 74.90

Queenstown Residential Consumers	2021/22	2022/23	2023/24	2024/25	2025/26
Small Consumer Profile	$ 2.60	$ 5.70	$ 11.30	$ 17.50	$ 24.10
Medium Consumer Profile	$ 4.20	$ 9.20	$ 18.40	$ 28.50	$ 39.40
Large Consumer Profile	$ 6.10	$ 13.40	$ 26.60	$ 41.20	$ 56.90

Comparison to Aurora's forecasted price increases

H31 We have compared our forecasted illustrative price increases under Scenario 1 to those in Aurora's original three-year CPP application. This compares Aurora's illustrative price increases in year three of its original three-year CPP application against our illustrative price increase in year three of our five-year CPP.

H32 We have compared the increase in the total monthly electricity bill for the average residential consumer from the current year to the end of year three because this is the change that stakeholders indicated they were most interested in.

H33 However, comparisons have proven difficult because of the differences between the calculation methods. These differences include:

H33.1 Aurora's forecasts were presented in real terms whereas ours are in nominal dollar, [597] as we felt that residential consumers would better engage with nominal amounts; and

H33.2 Aurora's forecasts excluded GST. Ours include GST, as we felt that most residential consumers would be bearing the GST cost.

H34 As such, we undertook a reconciliation of Aurora's forecasts to account for these differences and compared this to our illustrative price impacts for our median consumer profile. Provided in Table H24 is a summary of this reconciliation for each region. The top row shows Aurora's forecasted increase in the monthly total electricity bill for its average residential consumer in each region at the end of the three-year CPP.[598] We have then made the numbers GST consistent and brought the figures into nominal terms (accounting for the updated inflation forecasts).

Table H24 Reconciliation of Aurora forecast price impacts with our estimates

Change in residential total monthly at the end of year three		Dunedin		Central Otago		Queenstown
Aurora's CPP Application stated change	$	**20.30**	$	**30.90**	$	**24.10**
Aurora's updated change - GST consistent	$	23.40	$	35.50	$	27.70
Aurora's updated change - GST consistent & Nominal	$	36.00	$	50.20	$	44.10
Aurora's updated change - GST consistent & Nominal & Updated inflation	$	**32.70**	$	**47.30**	$	**39.80**
Aurora monthly increase in consistent terms	$	32.70	$	47.30	$	39.80
ComCom Change in monthly power bill	$	22.20	$	31.50	$	22.70
Movement in Monthly Bill due to our decision	-$	**10.50**	-$	**15.80**	-$	**17.10**

[597] Forecasts stated in real terms have been adjusted to remove the effects of underlying inflation, whereas nominal values include the effects of inflation and represent the total monetary value.

[598] These figures differ slightly to those publicly released due to Aurora subsequently restating its forecasts.

H35 As shown, the forecasts on a consistent basis are around 50% to 60% more than what Aurora originally published. For example, Dunedin's $20 per month GST exclusive real increase from the 2020-2021 monthly bill is more akin to $30 per month GST inclusive nominal increase.

H36 Our adjustments to the maximum allowable revenue described in Attachment G and our approach to revenue smoothing have reduced the total bill impact considerably across the first three years of the five-year CPP. In most cases, it has reduced the increases by between 30% to 40%. Coincidentally, our forecasted monthly **nominal** increase in total electricity bills is similar to Aurora's forecasted increase in **real** terms.

H37 There are still some differences between our forecasts and Aurora's. Aurora used an average (or medium) residential consumer in each region, whereas we have used a median consumer profile. There are also some differences in how Transpower's transmission costs have been forecasted. However, we have estimated these differences are relatively minor.

H38 There is nothing misleading in how Aurora presented its price impacts. It clearly stated that its forecasts were in real terms and excluded GST. The differences in the IRIS smoothing approach are purely due to different approaches being undertaken by us and Aurora in smoothing prices for consumers.

Our approach to modelling price impacts in detail

H39 Our modelling of Aurora's lines' charges and the total electricity bill impact is based on the Indicative Pricing Model that Aurora provided us. We have adapted and extended this model for our modelling. This includes extending it to include Aurora's total forecast allowable revenue, and to include tariff development and small, medium and large residential bill impacts.

H40 In summary our model:

H40.1 Allocates total forecast allowable revenue (maximum allowable revenue, pass-through costs and recoverable costs such as Transpower's transmission costs) into Aurora's three pricing regions using a range of cost allocators. For example, capex-related expenditures are allocated based on asset values in each region. Transmission charges and the avoid cost of transmission (ACOT) payments are generally tied directly to Transpower's GXPs, and other recoverable costs are allocated based on customer numbers.

H40.2 Allocates the regional costs into customer tariff classes in each region, including residential. This is based on its existing revenue allocation amongst customer classes in 2019.

H40.3 The model develops a residential tariff for each region based on the Low Fixed Charge (LFC) tariff that Aurora has for its residential consumers. This is described in detail further below.

H40.4 MBIE's latest QSDEP data is used to determine the current energy component to enable us to estimate the total electricity bill. This energy component is inflated by the forecast CPI used in Aurora's CPP application to produce a forecast nominal energy price; and

H40.5 The lines and the energy tariff components are applied to the small, medium and large residential consumer profiles in each region to work out the estimated Aurora lines' charge impact and the estimated total bill impact.

H41 We developed an estimated residential LFC tariff for each region that we used to test bill impacts arising from Aurora's CPP. We have selected an LFC tariff because Aurora only offers residential tariffs that are compliant with the Electricity (Low Fixed Charge Tariff) Regulations 2004.

H42 The process for developing the residential LFC in each region was:

H42.1 The total revenue from the 15 cents per day fixed charge (as per the Regulations) is derived by multiplying the charge by the total number of residential consumers in each region.

H42.2 This fixed charge revenue is deducted from allocated residential revenue in each region to produce the amount of revenues that must be recovered by the kWh variable consumption charge component; and

H42.3 This amount is then divided by the forecast electricity kWh demand in each region to calculate the variable tariff component of the LFC charge.

H43 We then applied these estimated tariffs to our small, medium and large residential consumer profiles for each region. These profiles were derived using residential consumption data from each region.

H44 The standard, or typical consumer in each region was defined as having the median annual consumption. It is not the average (or medium) consumption – which will be distorted by outliers in the sample of data.

H45 The small profile was set as the annual consumption level of the first 25% of residential consumers, and the large profile as the consumption level of the first 75% of residential consumers – some rounding takes place.

Table H25 Consumption profiles by region and size of consumer

Residential Consumer KWh Consumption:	Dunedin	Otago	Queenstown
Small	5,250	4,000	5,500
Median	7,500	6,500	9,000
Large	10,500	9,250	13,000

H46 The consumption profiles for the three regions are different. For example, Central Otago's consumption is noticeably lower. This may be due to that region using alternative energy source (e.g., wood burners) as a substitute for electrical heating or having a greater number of consumers on low or fixed incomes.

H47 Our approach to estimating the Low Fixed Charge Tariff produces a single variable tariff component. However, while Aurora has a single fixed charge component for residential tariffs, it has a variety of variable tariff options, including controlled and uncontrolled, summer and winter. The single variable rate we have developed reflects an average of these rates.

H48 To validate whether our tariff is a fair reflection of what consumers could expect to pay, we tested our results against Aurora's tariff schedule using MBIE's QSDEP consumer profiles for the Aurora regions.

H49 For example, we derived MBIE's consumer profile for the Central Otago region. This includes the types of tariffs Aurora uses (a combination of controlled and uncontrolled, and summer and winter rates) and the annual consumption used on each tariff. As shown, the Central Otago profile has consumers using 40% of their power on a controlled hot water tariff, which is controlled via ripple control. The remaining electricity is consumed in an uncontrolled "anytime" manner. 45% of the electricity is consumed in summer and 55% in winter.[599]

Table H26 Illustration of Central Otago's electricity consumption profile

Otago Consumption Split	
Controlled	40%
Uncontrolled	60%
Uncontrolled - Summer	45%
Uncontrolled - Winter	55%

[599] The results of this reconciliation are sensitive to these variables.

H50 We combined this consumption profile with Aurora's tariff rates for 2019-2020 and came up with the following results. As shown, there is only a 0.5% variance between our estimates and those we derive using the MBIE profile and Aurora's tariffs.

Table H27 Illustration of the reconciliation between our estimates and those using MBIE's consumption profile and Aurora's tariffs

Otago Small Consumer Profile		Aurora's Tariffs	Annual Cost
Daily Fixed Charge			$ 63
Annual Consumption	4,000		
Controlled - 40%	1,600	$ 0.0649	$ 104
Uncontrolled - 60%	2,400		
Uncontrolled Summer - 45%	1,080	$ 0.1177	$ 127
Uncontrolled Winter - 55%	1,320	$ 0.1763	$ 233
Calculated Distribution Cost - using tariffs			**$ 606**
Modelled Distribution Cost - using our calculated LFC tariff			**$ 609**
Variance in annual Bill - $			$ 3
Variance in annual Bill - %			0.5%

H51 We also get a close approximation to our Queenstown estimates. However, our Dunedin estimate has a 11% difference to our estimate using MBIE's profile. We attribute this to MBIE using an "all-inclusive summer and winter" tariff in its profile for Dunedin (it does not do this for Central Otago or Queenstown). However, when we apply a controlled and uncontrolled, summer and winter tariff profile (as we have for Otago and Queenstown) our estimates are only 1% apart.

Independent review of our pricing model and approach

H52 Given the high level of public concern at Aurora's price increases for the CPP period, we have engaged Castalia Advisors to review our bill impact model and approach. The scope of this review included an assessment of:

H52.1 the model's cost allocation amongst pricing regions and consumer classes compared to Aurora's pricing methodology;

H52.2 the approach for developing the estimated LFC fixed and variable tariffs for the three regions, and to contrast this against Aurora's tariff schedule;

H52.3 the small, medium and large consumer profiles that we developed;

H52.4 the impact that seasonality may have on monthly bills. And whether it is feasible for the purpose of our analysis to break down bill impacts to anything less than annual impacts;

H53 The Castalia review was not an assessment of Aurora's pricing methodology. The Electricity Authority undertakes reviews of EDB pricing methodologies.

H54 Castalia has provided the following feedback:

H54.1 The bill impact modelling provides a reasonable indication of the price changes that Aurora's consumers are likely to experience during the CPP period.

H54.2 Although the cost allocations used in our bill impact model are only an approximation, it provides a reasonable approximation for the purposes of estimating price impacts.

H54.3 The approach of using the LFC tariff is a reasonable approach given we are seeking to understand the effect of price changes on representative profiles.

H54.4 The approach of examining various consumer profiles, rather than a simple average is useful to demonstrate the bill impacts for a range of consumer types. This is particularly relevant given Aurora's pricing is highly volumetric.

H54.5 The usage profiles we have selected reflect the differences in the distributions between the regions and are consistent with the general observation that rural areas tend to have lower consumption than more urban areas.

H55 Castalia also recommended a number of changes to our bill impact modelling, which were all adopted.

Attachment I Draft information disclosure decision

Our draft decision to require Aurora to disclose further information

I1 The purpose of this attachment is to outline our draft policy decisions on further information that we may require Aurora to disclose, so that sufficient information is readily available to interested persons to assess whether the Part 4 purpose is being met.[600] These information disclosure requirements will apply to Aurora in addition to the existing requirements under the Electricity Distribution Services Information Disclosure Determination.[601]

I2 We will consult on our revised view on further information disclosure requirements as part of our revised draft information disclosure decision 31 March 2021, along with a draft determination.

I3 Our draft view is that, in addition to determining the CPP, requiring Aurora to disclose further information will allow interested persons sufficient information to assess whether the CPP is promoting outcomes consistent with outcomes produced in workably competitive markets. In particular, the outcomes listed in I15 below.

I4 The Verifier has highlighted areas of development for Aurora. We have also heard stakeholder concerns regarding Aurora's performance. Given some stakeholders' apparent lack of trust and confidence in Aurora (as discussed in Chapter 4) we consider improving Aurora's reporting and engagement requirements will assist Aurora to improve its communication with its stakeholders. Such progress may help Aurora demonstrate to its stakeholders that Aurora is committed to maximising long-term benefits to consumers by providing a reliable, safe, and efficient network.

I5 We welcome interested parties' views about any other measures or different approaches that could lift Aurora's performance and reassure its consumers.

I6 We have explained earlier in this paper some of the key issues and risks associated with Aurora's CPP, challenges associated with it delivering on its plan and improving transparency, and performance longer-term. Table 5.1 in Chapter 5 summarises these key risks and issues.

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[600] Section 53A of the Act.

[601] Commerce Commission "Electricity Distribution Services Information Disclosure Determination" [2012] NZCC22. To view the latest version of this determination with its amendments incorporated, see here.

I7 Information disclosure is one way we can improve transparency on Aurora's performance in the long term. From Table 5.1, we have replicated the key risks and issues that we could address through further information disclosure requirements in Table H1 below.

Table I1 Key issues, risks and measures of Aurora's CPP that information disclosure may address

Key risk/issue	Implication	How addressed in draft information disclosure decision
Aurora may not have identified all the work that its network needs and may need some flexibility to include newly-identified or uncertain work	Necessary work on the network is not carried out when it is needed. The quality of service to consumers may suffer as a result	Requiring Aurora to report on ongoing improvements in its data quality processes
Aurora may have overestimated the costs for the required work, resulting in us allowing higher than necessary revenue increases. Aurora might carry out its work inefficiently	Consumers pay too much	Requiring Aurora to report on cost efficiencies
Aurora might not deliver all of the planned work it has proposed	Consumers pay too much and necessary work on the network is not carried out when required	Requiring Aurora to produce an Annual Delivery Report Requiring Aurora to present its ADR to its consumers in the regions We will perform our own analysis on any ADR to help consumers assess Aurora's progress Requiring Aurora to report on any mid-period expert opinions on its progress on some areas of the ADR
Aurora is not as transparent with providing information or as responsive with its consumers as it should be	Consumers cannot assess Aurora's performance effectively and communicate their requirements to Aurora. Consumers' trust and confidence in Aurora is eroded	Requiring Aurora to engage with its consumers on its charter Requiring Aurora to provide information on quality of services
Consumers might not understand the full impact of Aurora's planned works programme on the prices they will pay	Consumers' comments on the proposal and draft decision is not informed by an accurate understanding of the price impact. Consumers make poorly informed decision on how they can change their use of electricity given the size of price increases	Requiring Aurora to disclose information on regional pricing to make it easier for consumers to understand its pricing methodology

I8 We acknowledge that there is always a cost with complying with additional disclosure obligations. However, our view is that the measures described in this attachment are not greater than those an efficient electricity lines company would undertake. We have placed similar disclosure obligations on Powerco[602] and Transpower,[603] which we consider provide valuation information to us and its consumers.

I9 We also consider that shining a light on the matters outlined in this attachment could help improve Aurora's performance in these areas, the benefits to consumers from Aurora developing its capabilities is significant.

I10 We welcome stakeholder views on whether disclosure of the information outlined in this attachment would meet this purpose. Please note that we would ordinarily publish any stakeholder views we receive, so please indicate if any part is confidential.

I11 Our draft view is that, requiring Aurora to disclose information relating to the following categories, will ensure that sufficient information is readily available to interested persons to assess whether the purpose of Part 4 is being met:

I11.1 delivery of the CPP;

I11.2 quality of services;

I11.3 pricing information;

I11.4 asset management;

I11.5 project quality assurance;

I11.6 cost estimation; and

I11.7 data collection and data quality processes.

[602] Commerce Commission "Section 53ZD notice – Annual delivery report requirements for Powerco's customised price-quality path" (28 March 2018).

[603] Commerce Commission "Transpower Section 53ZD notice – Asset health and risk modelling" (11 December 2019), Commerce Commission "Transpower Section 53ZD notice – Customer consultation" (14 November 2019), Commerce Commission "Transpower Section 53ZD notice – Cost estimation" (24 February 2020).

I12 Aurora has previously informed us that it is currently undertaking improvements in some of these areas, for example customer engagement (relating to the Delivery of the CPP), voltage quality monitoring on its LV network, asset management, cost estimation, and data collection and data quality processes. We welcome these initiatives. Additional information disclosure requirements are intended to encourage Aurora's performance and provide sufficient information to interested persons regarding Aurora's performance in these areas.

I13 In a future review of the information disclosure requirements that apply to all Electricity lines companies, we may consider whether the further information outlined in this attachment would be appropriate for all EBDs to disclose. Accordingly, we invite submissions from all interested persons to improve the measures outlined. However, any update to the information disclosure requirements that apply to all Electricity lines companies will have a separate consultation process that will allow interested parties an opportunity to provide their views.

Information disclosure framework

I14 The purpose of information disclosure regulation is to ensure that sufficient information is readily available to interested persons to assess whether the purpose of Part 4 is being met.[604]

I15 The purpose of Part 4 is to promote the long-term benefit of consumers in regulated markets by promoting outcomes that are consistent with outcomes produced in competitive markets such that suppliers of regulated goods or services :

I15.1 have incentives to innovate and invest, including the replacement, upgraded, and new assets; and

I15.2 have incentives to improve efficiency and provide services at a quality that reflects consumer demands; and

I15.3 share with consumers the benefits of efficiency gains in the supply of the regulated goods or services, including through lower prices; and

I15.4 are limited in their ability to extract excessive profits.[605]

I16 If we consider the information will better promote the purpose of information disclosure, we can require a wide range of information to be disclosed including:[606]

I16.1 financial statements (including projected financial statements);

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[604] Section 53A of the Act.

[605] Section 52A of the Act.

[606] Section 53C of the Act.

I16.2 prices, terms and conditions relating to prices, and pricing methodologies;

I16.3 plans and forecasts, including (without limitation) plans and forecasts about demand, investment, prices, revenues, quality and service levels and spare capacity, and efficiency improvements;

I16.4 asset management plans; and

I16.5 quality performance measures and statistics.

We have heard consumers' feedback that they require further information

I17 We have had feedback from stakeholders that they require further information on Aurora's performance:

> Aurora will have to be open and transparent with spending, showing where and how funds are being allocated, reporting on actual work completed and not pages of what they plan to do…if goals are not met and timelines keep being pushed out the commission must have the power to intervene.[607]
>
> Comcom has to insist that Aurora provides ComCom with an annual report of the upgrades carried out & ComCom then has that work inspected to ensure that it has actually been carried out. These audits should be paid for by Aurora with the cost not passed on to consumers.[608]

I18 Aurora has indicated that it is committed to improving transparency:

> We are committed to ensuring that the Commission and interested parties have access to information that provides transparency on the delivery of our CPP programme. We support providing periodic updates on the delivery of the programme to give assurance to stakeholders that we are meeting our targets. Consideration should be given to the relative immaturity of some of our systems and reporting processes when specifying the required information and level of detail. We believe that there are lessons to be learned from existing CPP reporting regimes. We propose to work with the Commission over the coming months to develop an appropriate reporting framework.[609]

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[607] Item 23 1-50 "Submission on Aurora Energy's CPP Issues paper" (27 August 2020)

[608] Item 42 1-50 "Submission on Aurora Energy's CPP Issues paper" (27 August 2020)

[609] Aurora Energy "Submission on Aurora Energy's Issues paper" (20 August 2020), para 30 – 31.

Key topic areas

I19 We set out in this Attachment I the key topic areas that we consider should be included in an Aurora information disclosure determination:

I19.1 information on accountability for Aurora Energy CPP outcomes - the Annual Delivery Report (ADR);

I19.2 information on Aurora's quality of services;

I19.3 information for enhanced disclosure of Aurora Energy's distribution pricing methodology - regional pricing;

I19.4 information on asset management - asset health, criticality, risk and prioritisation of future expenditures;

I19.5 information on the application of Aurora Energy's project assurance processes;

I19.6 information on ongoing improvements in Aurora Energy's cost estimation processes; and

I19.7 information on ongoing improvements in Aurora Energy's data quality processes.

Information on accountability for Aurora's CPP outcomes - the Annual Delivery Report

I20 Our draft view is that we will require Aurora to provide a consumer facing annual report which includes a combination of objective volumetric measures and more subjective qualitative measures that demonstrate how Aurora is delivering for customers through the CPP regime.

I21 Aurora has told us that it is committed to ensuring transparency around the delivery of its CPP programme with a view to maximising future benefits for customers and minimising regulatory costs.

I22 Our draft view is that the information listed in Figure I1 will allow interested persons to assess whether Aurora is delivering the investment provided for in the CPP and in doing so have incentives to improve efficiency and provide services at a quality that reflects consumer demands, consistent with the s 52A(1)(b) element of the Part 4 purpose.

I23 The ADR will be presented based on regional reporting requirements so that Aurora will demonstrate the progress achieved through the CPP in each of the three main regions covered by its network.

I24 Our starting point for devising this information was the Powerco CPP Annual Delivery Report, which we could have tailored for Aurora's specific circumstances.[610] We consider the Powerco CPP Annual Delivery Report provides valuable information for its consumers.

I25 Applying our powers under the Act, we can require this information in the form of:

I25.1 financial statements (including projected financial statements);[611]

I25.2 quality performance measures and statistics;[612]

I25.3 plans and forecast about investment;[613] and

I25.4 an independent audit.[614]

Figure I1 Our draft decision on Aurora's delivery of the ADR

Category	Draft decision on information disclosure requirements
QUALITATIVE MEASURES	
Introduction from Board/CEO	Explain key achievements in delivering CPP commitments and a high-level description of why progress is as forecast, ahead or behind schedule
CPP outcomes	Describes what Aurora is doing to ensure CPP outcomes are achieved and rolled out as efficiently as possible
Progress against overall programme milestones	Descriptive narrative on overall progress to date, status of projects still on track for successful delivery and if these are behind schedule, describe the reasons and actions to bring these back on track
Consumer engagement initiatives	Description of how Aurora has engaged with consumers in each of the three regions using various communication channels including public meetings, results of regional stakeholder events to present the ADR, detail proposed actions as a result of these events, narrative on outage communication performance and actions to improve, initiatives around worst served customers, vulnerable customers, providing quicker connections, charity work
Customer satisfaction	Detail the number of customer complaints received both general and in reference to charter commitments and the response times to these Complaints include ones referred to Utilities Disputes and voltage quality issues

[610] Commerce Commission "Section 53ZD notice – Annual delivery report requirements for Powerco's customised price-quality path" (28 March 2018).

[611] Section 53C(2)(a) of the Act.

[612] Section 53C(2)(i) of the Act.

[613] Section 53C(2)(g) of the Act.

[614] Section 53C(3)(b) of the Act.

Quality of services	High level summary to be published in the ADR, with supporting detail able to be published separately (eg, on Aurora's website) Description of how Aurora is improving consumer awareness of its existing charter, how it is tracking with meeting its existing service commitments in its charter and results of consumer consultation on proposed changes to its charter, including a mid-period review of progress Update of progress in improving voltage quality on its LV network processes against ID requirement, including a mid-period expert review in year 3 of the CPP period
Safety initiatives	Identify top 5 safety risks in the network, list and discuss statistics and corrective actions on public hazard and protection failure incidents Describe measures implemented to improve public and staff safety Explain how the cost effectiveness of safety investments have been determined using frameworks such as ALARP Summarise investments by asset class that have been installed for safety purposes If applicable, consider a mid-period expert review in year 3 of the CPP period, as outlined below
Environmental initiatives	Description of any initiatives taken to reduce the overall environmental impacts of operations
Regional pricing	High level summary to be published in the ADR, with supporting detail able to be published separately (eg, on Aurora's website) Update on consumer interactions regarding enhanced regional pricing disclosures against ID requirement
Asset management improvements	High level summary to be published in the ADR, with supporting detail able to be published separately (eg, on Aurora's website) Update of progress in improving asset management processes against ID requirement, including a mid-period review of progress in year 3 of the CPP period
Project quality assurance improvements	High level summary to be published in the ADR, with supporting detail able to be published separately (eg, on Aurora's website) Update of progress in improving project quality assurance processes against ID requirement
Cost estimation process improvements	High level summary to be published in the ADR, with supporting detail able to be published separately (eg, on Aurora's website): Update of progress in improving cost estimation processes against ID requirement
Data collection and data quality process improvements	High level summary to be published in the ADR, with supporting detail able to be published separately (eg, on Aurora's website)

	Update of progress in improving data collection and data quality processes against ID requirement
QUANTITATIVE MEASURES	
Financial performance of opex and capex projects and programmes	By region: Actual spend vs planned spend of projects and programmes, with high-level reasons for variances, for each region split by category: • Capex- renewals, growth and security, other network, non-network (and further detail on sub-categories within each) • Opex – network, non-network (and further detail on sub-categories within each)
Asset replacement	By region: • actual assets replaced vs planned, with high-level reasons for variances; and • unit cost per unit replaced
Projects	By region: • description on progress (% complete) and priority of all projects and programmes
Outages	By region: • unplanned and planned SAIDI and SAIFI • actual performance against charter commitments, with high-level reasons for variance • average length of planned and unplanned outages on the distribution and sub transmission network
Worst served customers' performance	By region, report on worst served customers: • Numbers of planned/unplanned outages • Length of outages • Restoration times
Maintenance backlogs	By region: • Work backlog numbers and age profile, split by corrective, preventative and reactive maintenance; and • Description of progress on clearing backlogs
Vegetation management	By region: • Kilometres of vegetation inspected and cleared, rates per kilometre

I26 As usual for our regular ID reporting requirements, we would require an audit of the quantitative reporting in the ADR to provide the level of assurance required by us and stakeholders.[615]

[615] Section 53C(3)(b) of the Act.

I27 Our draft view is that, for certain of the above qualitative information initiatives, we will also require Aurora to provide updated plans in the first half year of the CPP period that will detail how it will develop improvements to its relevant processes during the CPP period.

I28 In subsequent disclosure years of the CPP period, the ADR will then require Aurora to provide the annual updates on Aurora's performance on developing these processes.

I29 This approach of requiring updates on Aurora's current plans for the CPP period will cover the qualitative topics of customer satisfaction, customer engagement initiatives, and safety initiatives.

I30 We will also require Aurora to disclose the contents of the ADR by holding annual public meetings in each of its three regions. We consider annual public meetings will provide a valuable opportunity for Aurora to present its progress in terms of delivering the CPP and to ensure sufficient information is readily available to consumers to assess whether the purpose of Part 4 is being met.[616]

I31 Because the qualitative information in the ADR will largely be based on Aurora's own assessments, and these are specialist technical topics, we consider that it will assist interested parties if Aurora procured an engineering expert (or experts) to carry out forward-looking mid-period reviews of those aspects of the qualitative measures and provide an expert opinion on Aurora's progress against the development plans. Transpower is subject to a similar arrangement for customer consultation information it provides during the current IPP period.[617]

I32 A considered, independent report reflecting up-to-date information, will provide considerable benefit to all interested persons in testing Aurora’s progress. Such a report will also provide a mechanism to surface any issues or areas of concern to stakeholders, should they arise. It will also provide an opportunity for stakeholders to provide feedback to Aurora.

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[616] An information disclosure determination made under Section 52P must specify the manner in which the information is to be disclosed. See Section 53C(1)(d) of the Act.

[617] *Notice to supply information to the Commerce Commission under section 53ZD(1)(d)(i), (e)(i), and (f) of the Commerce Act 1986 - Customer consultation information*, 14 November 2019, para 2.4 and Attachment A para A5.

I33 An expert review will best be carried out in the second half of the third year of the CPP period (by reference to the first year plan updates and Aurora's progress in the 24 months following the publication of the plan updates). This will ensure that reporting at the end of the third year could be taken into account in the fourth and fifth years of the CPP period.

I34 Given the benefits for Aurora's consumers from this information, our draft view is that the costs of the expert opinion (or, where necessary, opinions) incurred by Aurora will be recoverable in its pricing.

Aurora's quality of services

I35 Consumers value a reliable electricity supply. Over time, reliable supply will be influenced by Aurora's planned work, asset management, and improved data collection and data quality, which we consider Aurora should report on. As discussed in Attachment C – Setting the draft quality standards for reliability, through the CPP we are requiring Aurora to report on the causes of its outages.

I36 Our draft view is that the ADR will require Aurora to update consumers on how it is delivering services consumers value by reporting on communication about outages, network reliability and safety improvements.

I37 Our draft view is also to require Aurora to provide an updated plan in the first half year of the CPP period that details how it will continue to develop improvements to its processes for monitoring of voltage quality on its LV network and how it plans to communicate the results of those improvements to customers. In disclosure years two through five of the CPP period, we will also require Aurora to provide an annual update against that plan on Aurora's performance on developing those improvements.

I38 Due to the relative complexity of this topic, we think it will be useful for both us and Aurora's stakeholders for an expert to be engaged by Aurora to carry out a forward-looking mid-period review and provide an expert opinion on Aurora's progress against the voltage quality monitoring plan and, in particular, to make publishable recommendations on any change in course for Aurora for the balance of the CPP period.

I39 These reporting requirements will provide better information so that Aurora's customers know whether Aurora has sufficient incentives to provide services that reflect consumer demands, consistent with the s 52A(1)(b) element of the Part 4 purpose. We can require this information in the form of quality performance measures and statistics.[618]

I40 In addition to these measures, our draft view is that Aurora should report on a number of measures relating to Aurora's voluntary commitments in its customer charter and commitments to improve notification of outages as explained in Attachment C – Setting the draft quality standards for reliability. These are outlined below.

I41 Aurora has a voluntary customer charter that commits to meeting certain service levels and in some cases, compensating affected customers when it does not meet certain standards.

I42 Our draft view is that Aurora will be required to report on the extent to which it meets its service commitments in its voluntary charter and any associated compensation it has paid out in dollars. Aurora's voluntary commitments relate to: restoring service after any unplanned outages, notifying about planned outages, responding to power quality complaints, response time to customer queries, maximum power outage targets for customers in different regions (urban and rural), and quality of supply, including voltage stability.[619]

I43 Aurora has told us that it intends to update its customer charter and that it is likely to consult consumers on proposed changes. However, we lack clarity on the speed and substance of these changes.

I44 Our draft view is to require Aurora to:

I44.1 publicly disclose its compensation scheme and service level targets;

I44.2 report on how it has consulted with consumers on any proposed changes to its minimum service commitments and associated compensation; and

I44.3 report the number and type of complaints it receives from customers and whether the complaints are covered by the service level targets and compensation. This could add to the consultation process by helping to show the areas that are important to customers.

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[618] Section 53C(2)(i) of the Act.

[619] We note that Aurora's voltage level commitments are consistent with the voltage supply requirements in the Electricity (Safety) Regulations 2010. Under the Electricity (Safety) Regulations 2010, it is an offence to breach the relevant regulations which are enforced by WorkSafe.

I45 We understand Aurora intends to review the process for identifying non-notified planned outages, as it considers the current controls are less robust than needed. We favour requiring Aurora to report on:

I45.1 how it has improved consumers' awareness of its charter and access to compensation, which includes reporting on the outcomes of Aurora's signalled review of identifying non-notified planned outages;

I45.2 its performance against its implied targets in its planned SAIDI forecasts of increasing its compliance with the DPP3 notification criteria over the CPP period, and any planned outages that: [620]

I45.2.1 are cancelled at short notice; and

I45.2.2 are >10% variance from notified time.

I46 These reporting obligations will provide Aurora's customers information on whether Aurora is improving its data and reporting records on its performance against its service commitments. As noted, Aurora currently does not record payments made against individual service standards, however, recording this information is a reasonable expectation. We also have confidence that Aurora can achieve this as it informed us of plans to improve these data records and its monitoring of its performance against those service standards.[621]

I47 Our draft view is that, as part of the ADR, Aurora will include information on its performance against its voluntary charter and improvements it has publicly committed to making on outage notification.[622] This includes implementing an improved outage management system and improving contractor expectations and correspondence about cancelled outages.

[620] We understand Aurora reports similar measures internally, indicating it is likely to be able to comply with these with relative ease.

[621] Aurora response to RFI Q019 - Reliability, service measures and quality standards (2).

[622] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), p.25.

Information for enhanced disclosure of Aurora's distribution pricing methodology - regional pricing

I48 The CPP will allow Aurora to increase its prices to pay for higher levels of expenditure. The size of the price increases may vary between the regions on Aurora's network.

I49 We currently require electricity lines companies to disclose their pricing methodologies before each disclosure year which starts on 1 April. We also set the contents of those methodologies, including requiring electricity lines companies to:

> Include sufficient information and commentary to enable interested persons to understand how prices were set for each consumer group, including the assumptions and statistics used to determine prices for each consumer group;

I50 For this purpose, 'consumer group' is defined in the electricity lines company ID Determination as:

> means the category of consumer used by the EDB for the purposes of setting prices

I51 From Aurora's existing information disclosures, it is difficult for consumers to understand how Aurora's pricing methodology applies and the effect of assumptions and methodological choices. Aurora has indicated that it plans to undertake a review of its pricing methodology in 2023.

I52 With the price increases under the CPP, we have heard significant consumer concerns around how Aurora's prices differ between its regions, and the upcoming review of its pricing methodology.

I53 Our draft view is that further pricing information will provide better regional information so that Aurora's customers know the basis on which they are charged for services and why there are differences in price between Aurora's regions. We can require this information in the form of pricing methodologies.[623]

I54 We expect that the following enhanced pricing information each year will allow interested persons sufficient information to assess whether Aurora has incentives to share with consumers the benefits of efficiency gains in the supply of the regulated goods or services, including through lower prices, consistent with the s 52A(1)(c) element of the Part 4 purpose:

I54.1 Information that allows interested persons to understand the implications of Aurora's assumptions, and methodological choices made on prices for each consumer group in each pricing region.

[623] Section 53C(2)(c) of the Act.

I54.2 Provide a worked example for a standard consumer in each consumer group (ie for a residential consumer that used 9000 KWh per year) in each pricing region on how that consumers prices are set.

I54.3 Disclose Aurora's cost of supply model down to a level that individual contracts cannot be identified.

Information on asset management - asset health, criticality, risk and prioritisation of future expenditures

I55 We discussed in Chapter 3 that a number of submitters identified Aurora's poor asset management practices as a major reason for its current predicament. We also discussed how sound asset management is integral to delivering services at a price and quality that reflects the demands of electricity customers. We have also discussed Aurora's poor asset management in Attachments D and E.

I56 Our draft view is that we will require Aurora to provide an updated plan in the first half year of the CPP period that details how it will continue to develop improvements to its asset management processes during the CPP period.

I57 In disclosure years two through five of the CPP period, we will also require Aurora to provide an annual update against that plan on Aurora's performance on developing these processes.

I58 We consider that consumers require information that allows them to determine whether they are paying too much for the delivery of work on Aurora's network due to inefficient asset management practices. We can require this information in the form of asset management plans and reporting on asset management maturity.[624]

I59 Our draft view is that requiring Aurora to also disclose the following asset management information will allow interested persons sufficient information to assess whether or not Aurora has incentives to improve efficiency, consistent with the s 52A(1)(b) element of the Part 4 purpose:

I59.1 processes and policies for testing assets consistent with industry standards;

I59.2 processes for consistent asset data entry and annual asset data audit (see also "Data collection and data quality processes" requirement);

[624] Section 53C(2)(h) of the Act and Electricity Distribution Information Disclosure Determination 2012 NZCC 22, clause 2.6, Attachment A and s 13.

I59.3 processes so that asset health models are informed by asset condition data and models are consistent with industry accepted modelling practices for each asset class and type, where appropriate;

I59.4 processes to test whether volumetric asset health modelling using age-based survivor curves are consistent with industry accepted modelling practices for each asset class and type where appropriate;

I59.5 processes to improve understanding of asset criticality and prioritisation of asset replacement and renewals. Depending on the investment drivers, this improved understanding could be based on the following information:

I59.5.1 SAIDI and SAIFI impact of the asset outage - each key asset will have an asset health measure which will affect the asset outage probability with the outcome that SAIDI and SAIFI can be expressed probabilistically;

I59.5.2 kWh or MWh impact of the asset outage - some understanding of the kW or MW outage magnitude and return to service durations needed for each of the key assets; and

I59.5.3 asset outage reliability cost - which includes the consumer outage cost using VoLL, and can include the potential replacement cost of the asset, and the environmental cost of asset failure (e.g. such as oil leakage if there was a major transformer failure);

I59.6 processes to coordinate asset condition, asset health models and criticality understanding. AMS should also coordinate with regulatory financial reporting for line-of-sight from asset data collection and modelling processes to expenditure forecasts;

I59.7 processes to improve the asset risk framework to inform risk-based decision-making. Risk framework ideally should be driven by AMS with expert opinion informing decisions but not driving these decisions and contain considerations of reliability risk, environmental risk, HILP risk and safety risk;

I59.8 processes to improve risk cost trade-offs using an industry accepted condition-based risk framework. A risk quantification approach is especially required where safety investment is proposed that goes beyond investments required to meet statutory safety obligations and industry design standards (the discretionary safety expenditure); and

I59.9 provide regular reporting that describes the current level of business safety risk and actions that have been taken to quantify, control and mitigate safety risk within acceptable limits (eg ALARP - as low as reasonably practicable).

I60 Due to the relative complexity of this topic, we think it will be useful for both us and Aurora's stakeholders that Aurora engage an expert to carry out a forward-looking mid-period review and provide an expert opinion on Aurora's progress against the asset management development plan and, in particular, to make publishable recommendations on any change in course for Aurora for the balance of the CPP period. This will be similar to the role that we specified for Transpower for its asset health and risk modelling during the current IPP.[625]

I61 Our view is that this expert information will provide better information so that interested persons can assess whether Aurora has incentives to improve efficiency, consistent with the s 52A(1)(b) element of the Part 4 purpose. Such an expert review would best be carried out in the second half of the third year of the CPP period by reference to the first year updated plan and Aurora's progress in the 24 months since the publication of that plan update. This would ensure that reporting at the end of the third year could be taken into account by Aurora in the fourth and fifth years of the CPP period.

I62 Given the benefits for Aurora's consumers from this information, our draft view is that the costs of the expert opinion incurred by Aurora will be recoverable in its pricing.

Information on the application of Aurora's project assurance processes

I63 Aurora has proposed to implement a range of works deliveriny quality assurance processes and has undertaken to employ staff specifically for this purpose. This is due to the need to manage delivery of its significant network works and will go some way to alleviating submitter concerns about observed works delivery inefficiencies.

I64 Quality assurance is a key aspect of asset management, particularly when safety issues are identified and mitigated. Mature quality assurance processes:

I64.1 help to ensure that assets are maintained and installed to meet industry standards and statutory requirements, including safety issues; and

I64.2 avoid the need to revisit work considered to be complete, which reduces overall costs.

I65 Our draft view is that we will require Aurora to provide its updated plan in the first half year of the CPP period that details how it will continue to develop processes to improve its project quality assurance processes.

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[625] Commerce Commission "Transpower Section 53ZD notice – Asset health and risk modelling" (11 December 2019), para 2.3 and Attachment A para A2 and A3.

I66 In disclosure years two through five of the CPP period, we will also require Aurora to provide an annual update on Aurora's performance against that plan in terms of developing these processes.

I67 We consider that consumers require information that can inform them whether or not they are paying too much for the delivery of work on Aurora's network due to inefficient project quality assurance practices. We can require this information in the form of forecast plans, including (without limitation) plans and forecasts about efficiency improvements.[626]

I68 In particular, our draft view is that the disclosure of the processes to improve the quality of projects and programmes and to ensure projects and programmes have been installed and implemented to meet industry standards and any statutory requirements (including safety), will allow interested persons to assess whether Aurora has incentives to improve efficiency, consistent with the s 52A(1)(b) element of the Part 4 purpose.

Information on ongoing improvements in Aurora's cost estimation processes

I69 Our draft view is that we will require Aurora to provide its updated plan in the first half year of the CPP period that details how it will continue to develop processes to improve its cost estimation processes.

I70 In disclosure years two through five of the CPP period, we will require Aurora to provide an update on its performance against that updated plan in terms of developing these processes.

I71 We consider that consumers require information that allows them to determine whether or not they are paying too much for the delivery of work on Aurora's network due to inefficient cost estimation practices. We can require this information in the form of forecast plans, including (without limitation) plans and forecasts about efficiency improvements.[627]

I72 In particular, our draft view is that disclosing the following cost estimation information will allow interested persons to assess whether Aurora has incentives to improve efficiency, consistent with the s 52A(1)(b) element of the Part 4 purpose:

I72.1 processes to improve asset unit rate estimates that feed into Aurora's costing building blocks models;

[626] Section 53C(2)(g) of the Act.

[627] Section 53C(2)(g) of the Act.

I72.2 processes to improve the accuracy of Aurora's costing building blocks models, definitions and inherent assumptions;

I72.3 regularly reviewed and audited asset unit rate cost estimates and building blocks costs processes to ensure that they remain fit for purpose;[628]

I72.4 asset unit rate cost estimates and building blocks costs are updated and managed through a single point of control and in an environment that is accessible to staff; and

I72.5 processes to improve initial project and programme cost estimation, with final costs within a variance of +/-10%.

I73 The Verifier of Aurora's CPP application outlined that the processes outlined in I72.1 to I72.4, are areas Aurora could improve.[629] The Verifier noted that the overall aim of improvements in cost estimation should be to improve estimating the accuracy that will support better assessments of options to network needs, and drive for more cost efficiency in project and program costs.[630]

Information on ongoing improvements in Aurora's data quality processes

I74 One of the reasons that Aurora applied for a three-year CPP rather than five-years, is that it is working on improving its asset data and asset management maturity to support network planning and expenditure forecasting.[631]

I75 Our draft view is that we will require Aurora to provide its updated plan in the first half year of the CPP period that details how it will continue to develop processes to improve its data collection and data quality processes.

I76 In disclosure years two through five of the CPP period, we will also require Aurora to provide an update on Aurora's performance against that updated plan in terms of developing these processes.

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[628] 'Regular review' means six-monthly until the processes are considered mature. 'Regular audit' means annually until the processes are considered mature.

[629] Farrier Swier Consulting Pty Ltd and GHD Pty Ltd "Verification report - Aurora Energy CPP application" (8 June 2020), s 6.5.1 & 6.5.3.

[630] Farrier Swier Consulting Pty Ltd and GHD Pty Ltd "Verification report - Aurora Energy CPP application" (8 June 2020), p.125.

[631] Aurora Energy "Customised Price-Quality Path - Application" (12 June 2020), para 189.2.

I77 We consider consumers require information that allows them to determine whether or not they are paying too much for the delivery of work on Aurora's network due to inefficient data collection and data quality practices. We can require this information in the form of forecast plans, including (without limitation) plans and forecasts about efficiency improvements.[632]

I78 Our draft view is that requiring Aurora to disclose the following data collection and data quality information will allow interested persons sufficient information to assess whether Aurora has incentives to improve efficiency, consistent with the s 52A(1)(b) element of the Part 4 purpose:

I78.1 processes to improve asset management tools and data so that these tools and processes:[633]

I78.1.1 improve organisational knowledge and decision making;

I78.1.2 ensure that assets are replaced or renewed in a timely manner; and

I78.1.3 ensure that expenditure forecasts can be relied on;

I78.2 processes to improve the data collection from internal and external stakeholders (including contracted service providers);[634]

I78.3 processes to improve data sharing between Aurora Energy and Aurora's service providers;[635]

I78.4 processes to use data to test performance, evaluate whether the asset management policies and objectives are being achieved, and identify corrective actions and areas for improvement; and processes that enable Aurora to demonstrate how it ensures that there is consistency and traceability between technical asset information and accounting records; with a technical, operational and financial linkage, which is consistent and traceable to the assets.

[632] Section 53C(2)(g) of the Act.

[633] This is a requirement of the ISO 55002 standard, see Section 2.5.2(a).

[634] This is a requirement of the ISO 55002 standard, see Section 7.5.3(j).

[635] This is a requirement of the ISO 55002 standard, see Section 8.3.2(e).

Attachment J Draft IM variations

We may vary an IM that would otherwise apply to Aurora

J1 In determining a CPP, and with the agreement of Aurora, we may vary an IM that would otherwise apply to Aurora for the CPP regulatory period.[636] This Attachment outlines our draft view on the IM variations that we consider we should seek to agree with Aurora.

J2 Aurora has written to us to propose variations to the:[637]

- J2.1 Urgent Project Allowance (claw back);[638]
- J2.2 Operating expenditure incentives;[639] and
- J2.3 CPP opex forecast.[640]

J3 Aurora has subsequently withdrawn its request for the Urgent Project Allowance.[641]

J4 In addition to outlining our draft view on the other two IM variations proposed by Aurora, this Attachment provides our draft view on the following additional suggested variations:

- J4.1 CPP reconsideration mechanisms; and
- J4.2 definition of 'actual opex'.[642]

J5 We also note for consideration and submission by Aurora and other stakeholders our view of the potential benefits if we were to make an IM variation that would allow us to use the most up to date forecast CPI.

J6 See Table I1 for a summary of our draft view on IM variations.

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636 Commerce Act 1986, Section 53(V)(2)(c).

637 Aurora "Aurora Energy CPP Proposal – Application for IM Variations" (1 June 2020).

638 EDB IMs clause 3.1.3(11).

639 EDB IMs clause 3.3.2(2).

640 EDB IMs clause 5.3.5(1).

641 Aurora withdrew its request for this variation as it determined that the merits of a varied Urgent Project Allowance were not as great as it anticipated, it would place greater upward pressure on prices and the justification and analysis might be distracting for the Commission and Aurora. See Aurora "Aurora Energy CPP – Input Methodology (3.1.3) Variation Application" (2 September 2020).

642 EDB IMs clause 3.3.3(9).

Table J1 Summary of our draft view on IM variations

Draft IM variation	Our draft view
Operating expenditure incentives (Aurora application)	✗
CPP opex forecast (Aurora application)	✓
Reconsideration mechanisms (Our suggestion)	✓
Definition of 'actual opex' (Our suggestion)	✓

Our approach to the draft IM variations

J7 We have applied the IM amendments decision making framework in deciding whether to agree to the variations applied for by Aurora and those suggested by us. Specifically, we have considered whether the variations would promote the following outcomes:[643]

J7.1 promoting the Part 4 purpose in s 52A of the Act more effectively than the current IM;

J7.2 promoting the IM purpose in s 52R of the Act more effectively (without detrimentally affecting the promotion of the s 52A purpose); or

J7.3 significantly reducing compliance costs, other regulatory costs or complexity (without detrimentally affecting the promotion of the s 52A purpose).

J8 To give effect to any IM variations, a deed will be executed by us and Aurora. A draft IM variations deed is included in Schedule 12 of the draft CPP determination.

Operating expenditure incentives

J9 Aurora has proposed a variation to clause 3.3.2(2) of the electricity lines company IM, which would allow the IRIS incentive to be spread over two periods to smooth the price path. Aurora considers that this proposal will assist in managing the scale of revenue uplift and potential rate of shock.[644]

J10 Our draft view is that the price path can be smoothed by:

J10.1 specifying a limit or limits on the annual maximum percentage increase in forecast revenue from prices; and/or

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[643] Commerce Commission "Amendments to Electricity Distribution Services Input Methodologies Determination – Reasons paper" (26 November 2019), para 2.18.

[644] Aurora "Aurora Energy CPP Proposal – Application for IM Variations" (1 June 2020).

J10.2 adjusting the x factor in the 'maximum allowable revenue before tax' calculation.

J11 Clause 3.1.1(1)(b) of the IM Determination allows us to limit revenue shocks to consumers caused by increases in the gross revenue that electricity lines companies can earn, after pass-through costs and recoverable costs (which include IRIS amounts) are included.

J12 If the limit is applied, then the electricity lines company's revenue cash flows will be delayed, but any revenue reduction will be able to be recovered in future years, including beyond the current regulatory period, along with a time-value-of-money adjustment.

J13 The x factor can be any factor we apply to Aurora and it sets a profile for the timing of recovery of the revenues allowed under the CPP price path. We can adjust this factor and this potentially has the effect of smoothing revenues within the CPP regulatory period, before the addition of pass-through costs and recoverable costs. Attachment G provides greater detail on our draft views on price smoothing.

J14 With respect to the application for the IM variation, we consider that it is more effective to smooth revenues using these other mechanisms, since they directly impact allowable revenues, whereas the IRIS amounts is only one component of allowable revenues.

J15 Since the same or similar outcome can be achieved without a variation, we do not consider that a variation would better promote the Part 4 purpose. We also do not consider that the variation would promote certainty for Aurora (see s 52R) or significantly reduce compliance, other regulatory costs or complexity.

J16 Our draft view is therefore not to agree to Aurora's application on this variation.

CPP opex forecast

J17 Aurora is planning to self-perform business support functions that had previously been provided by Delta Utility Services (Delta), this will impact how operating costs are allocated. Therefore, Aurora has proposed a variation to clause 5.3.5 of the electricity lines company IMs, which currently require Aurora to have consistent operating costs with its current or most recent ID disclosures. This would understate the forecast operating costs due to Aurora's operating structure change.

J18 Clause 5.3.5 of the electricity lines company IMs requires consistent cost allocation except for where there is a sale of assets. The intention was that by maintaining consistent allocation, incentives for improved efficiencies from engaging in other activities remained the same throughout the CPP regulatory period (subject to the sale of assets exception).

J19 We have estimated that the requested variation would increase Aurora's maximum allowable revenue by approximately $4 million over a 5-year CPP regulatory period.

J20 Aurora's change to its operating structure followed a 2016 independent review by Deloitte. Deloitte found that the current operating structure at that time did not optimise the performance of some parts of the business. One of its recommendations was to enter into a service provision agreement for a fixed period of time with Delta, for certain core services, to allow for a sensible transition to the proposed internal cost structure. Aurora began the transition to its new operating structure in 2018, and the remaining shared support will be phased out by 2023.

J21 We consider that a restructure of this size and nature is analogous to a corporate restructuring, such as a sale. Therefore, although not explicitly provided for under current IMs, it is appropriate for Aurora to be able to recover the forecast operating costs that reflect its updated, and potentially more efficient, structure.

J22 The IM variation will allow Aurora to recover a better reflection of its costs that it is likely to incur. This is consistent with the Financial Capital Maintenance principle. Therefore, we consider that a variation to clause 5.3.5(1) of the electricity lines company IMs better promotes the Part 4 purpose.

CPP reconsideration mechanisms

J23 Aurora has applied for a 3-year CPP because of uncertain expenditure forecasts in the medium to long term.[645] To address the uncertainty that might arise due to us determining a 5-year CPP, our draft view is that we will seek agreement with Aurora on an IM variation to introduce new reconsideration mechanisms for:

J23.1 work that is dependent on capacity requirement, caused by a change in security of supply, or an increase in demand or generation on Aurora's network; and

J23.2 risk events relating to the condition of the network that were uncertain before the CPP was determined.

[645] Aurora Energy "Customised Price-Quality Path Application" (12 June 2020), para 3.
Aurora Energy "Submission on Aurora Energy's Issues paper" (20 August 2020), para 189.

Capacity event

J24 The capacity event reconsideration mechanism would allow us to reconsider the CPP if Aurora demonstrates that it needs additional capacity on its network.

J25 The capacity event reconsideration mechanism, to an extent, mirrors the DPP reconsideration provisions that we introduced prior to setting DPP3.[646] Therefore, it allows us to provide additional funding where investment is required due to:

J25.1 large connections (including alteration to existing connections);

J25.2 large system growth;

J25.3 combination of large connections and system growth; and

J25.4 large asset relocation.

J26 Our draft view is that it would be appropriate for us to reconsider the CPP if capacity was required on Aurora's network during the CPP period, that was not sufficiently certain or could not reasonably have been foreseen by Aurora at the time we determined the CPP. This includes investment that was:

J26.1 unforeseen at the time Aurora applied for the CPP;

J26.2 foreseen, but the need was uncertain at the time we determined the CPP;

J26.3 foreseen for later regulatory periods but changes in circumstances mean that the investment needs to be brought forward into the CPP period; and

J26.4 foreseen and provided for in the CPP, but increased demand means that the allowance provided for in the CPP was too low.

J27 The threshold for reconsidering the CPP due to a capacity event is two million dollars above any allowance for that investment that was provided for in the DPP or CPP. We consider that this is an appropriate threshold as it is in line with the following projects and programmes that Aurora proposed in its CPP application, where we did not consider that the need was sufficiently certain to provide for expenditure in the CPP:

J27.1 the Arrowtown upgrades;

J27.2 the Smith St to Willowbank intertie project; and

J27.3 $2.1million of the consumer connections capex.

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[646] Commerce Commission "Default price-quality paths for electricity distribution businesses from 1 April 2020 - Final decision" (27 November 2019), Attachment G.

J28 We consider that if Aurora establishes that it needs additional capacity on its network and the projects listed above are required, it is appropriate for us to reconsider the CPP. We also consider that it would be appropriate for us to reconsider the CPP for similar projects that were not foreseen or certain at the time the CPP was determined.

J29 We would also expect the capacity event would meet certain conditions, including the expenditure objective,[647] which means that:

J29.1 the capital expenditure and operating expenditure reflects the efficient costs that Aurora would require to meet or manage the expected demand, at appropriate service standards; and

J29.2 it complies with applicable regulatory obligations.

Risk event

J30 The risk event reconsideration mechanism would allow us to reconsider the CPP if Aurora establishes that part of its network is deteriorating to the extent that not further investing in the network beyond the investment provided for in the CPP would demonstrably:

J30.1 adversely affect its ability to meet its quality standards; or

J30.2 compromise safety for any person, equipment, the network or an embedded network.

J31 We consider that this risk event reconsideration mechanism is appropriate for Aurora's specific circumstance because of the level of risk it may be carrying that it had not forecast when it submitted its CPP application.

J32 The threshold for reconsidering the CPP due to a risk event is two million dollars above any allowance for that investment that was provided for in the DPP or CPP. We consider this is an appropriate threshold considering that it is intended to capture similar sized investment as a capacity event.

J33 Our draft view is that a risk event is an event where additional investment cannot be delayed until a future regulatory period without compromising safety or adversely affecting Aurora's ability to meet its quality standards. We also consider that for a risk event to occur, the remediation would have to meet the expenditure objective, as discussed above. Aurora would also have to demonstrate this with a probabilistic risk assessment.

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[647] We have also made a minor variation to the definition of 'expenditure objectives' to better align the definition to electricity distribution services.

How introducing new consideration mechanisms would promote the Part 4 purpose

J34 By allowing us to reconsider the CPP when events occur that could not be foreseen at the time the CPP was determined, we consider that this variation promotes the Part 4 purpose by enabling Aurora to invest in its network if further investment is required, consistent with s 52A(1)(a).

Definition of 'actual opex'

J35 We have previously made an IM amendment that explicitly excludes pecuniary penalties from operating costs.[648] This IM amendment only came into effect for DPP3 (starting 1 April 2020) and was not in effect for DPP2.

J36 The penalty that the High Court imposed on Aurora for breaching its quality standards was incurred on 23 March 2020.[649] This means that without an IM variation the penalty will get included in the IRIS calculation for DPP2 as 'actual opex', the cost of which would then be shared with consumers during DPP3.

J37 We also note that Aurora has excluded the penalty from its information disclosure indicating that it has been removed from its regulatory accounts. This means that Aurora would effectively bear the full cost of the penalty. However, this approach is at odds with the IMs that applied at the time the cost was incurred.

J38 At our stakeholder engagement sessions consumers expressed concern that the cost of the High Court imposed penalty would be passed to consumers. They also wanted us to report back on whether the penalty was included in the CPP.

J39 Therefore we propose agreeing with Aurora to remove the penalty from 'actual opex'.

J40 We consider that this variation promotes the Part 4 purpose by ensuring that consumers do not bear the High Court imposed cost, and is not required under the current IMs because Aurora incurred the penalty nine days before the new IM provision took effect.

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[648] Electricity Distribution Services Input Methodologies Amendments Determination (No. 2) 2019 [2019] NZCC 20.

[649] *Commerce Commission v Aurora Energy Limited* [2020] NZHC 610 [23 March 2020].

Forecast CPI

J41 In setting the draft Aurora CPP price path, we have used forecasts from 2019 for the expected changes in CPI instead of the most recent CPI forecasts. This is because the IMs, as currently drafted, require us to use the forecasts of CPI from prior to the date the WACC rate was determined (25 September 2019) to model both the price path and forecast revaluation gains.

J42 As discussed in Chapter 2 and Attachment G, we would ideally use the most up to date forecast of all cost components, including the CPI, to set the price path. Using up-to-date forecasts should produce more accurate estimates of costs over time than older forecasts.

J43 As part of its submission to this draft decision Aurora can propose an IM variation to allow the use of a more up-to-date forecast of CPI for the purpose of setting its price path. An IM variation to this effect would reduce the risk of revenue under-recovery consistent and allow Aurora to recover a better reflection of its costs. This is consistent with the Financial Capital Maintenance principle. Therefore, we consider that a variation to clause 3.1.1(8) of the electricity lines company IMs may better promote the Part 4 purpose.