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Chorus' price-quality path from 1 January 2022 – Draft decision

Reasons paper

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30 April 2021	ISBN 978-1-869458-85-0	Chorus' initial regulatory asset base as at 1 January 2022 - Consultation on Chorus' initial price quality RAB proposal.
27 May 2021		Commerce Commission - Requests for information from Chorus - 27 May 2021.

Commerce Commission
Wellington, New Zealand

Foreword

Tēnā Kotou

The COVID-19 lockdowns provided a stark reminder that the fibre networks New Zealand has built over the past decade, under the Government's Ultrafast Broadband (UFB) programme, are critical to every aspect of social and economic life in New Zealand and to our success in the digital future.

The regulatory regime under Part 6 of the Telecommunications Act, which comes into force at the beginning of next year, is intended to promote continued investment in this essential infrastructure, while delivering quality, value and choice for New Zealand consumers.

Last year, we completed the first step towards implementing this new regime with our input methodologies for fibre fixed line access services, which established a framework of rules giving all parties greater certainty about the fundamentals of the new regime.

This year, we will complete this process, by using our input methodologies to set a price-quality pathway for Chorus and information disclosure requirements for all fibre providers.

Our aim is to achieve a smooth transition to the new regime, by retaining features of the previous contractual and regulatory arrangements that have made UFB a success, while also putting in place the core components of building blocks regulation, which will create incentives for Chorus to act in the best interests of consumers and promote competition in telecommunications markets.

We are progressing our work on these building blocks for Chorus in two parallel streams: (1) price-quality regulation; and (2) the regulatory asset base (including the financial loss asset and cost allocation). This will enable us to phase our work such that draft and final decisions on key building blocks will progressively fall into place as we move towards our final decisions for price-quality regulation in November.

Our aim is to provide Chorus and other stakeholders with progressively more certainty, as we move through the process to November 2021, when most of the key building blocks will come together as an integrated package of measures.

This integrated set of decisions will give Chorus certainty of revenues and the quality requirements applying to its business for the first regulatory period from 1 January 2022 to 31 December 2024 as well as the wash-up provisions that will apply between regulatory periods.

Further certainty will come with more time and experience of the new regime – just as it did for the other sectors that are subject to building blocks regulation – along with the greater stability and predictability this form of regulation provides.

As we move forward, the Part 6 regime must remain flexible over the long term, given the dynamic and rapidly changing nature of telecommunications markets.

Flexibility can be achieved through future price-quality resets where, consistent with other sectors, we seek to refine our approach to expenditure assessments, efficiency incentives, and quality regulation over time. Equally, the regime allows for flexibility to be achieved through reviews of declared services and deregulation reviews, if markets reach a point where competition would deliver the best outcomes for consumers.

In either case, our role is to deliver the best long-term outcomes for consumers by creating a stable regulatory environment for Chorus, and a level playing field for all market participants.

Your input is essential to ensuring this transition is a successful one and we look forward to hearing from you as we progress through the consultations leading to our final decisions at the end of the year.

Ngā mihi nui

Tristan Gilbertson

Telecommunications Commissioner

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Executive summary

Purpose of this paper

X1 We are in the process of setting Chorus' price quality (PQ) path for the first regulatory period (PQP1) from 1 January 2022 to 31 December 2024.

X2 We are publishing these decisions in two tranches:

- X2.1 first, in this paper, our draft decisions on:
  - X2.1.1 how Chorus' revenue path will operate;
  - X2.1.2 the treatment of depreciation for Chorus' assets;
  - X2.1.3 expenditure allowances; and
  - X2.1.4 quality standards; and
- X2.2 second, our current process anticipates we will publish a paper in August setting out our draft decisions on:
  - X2.2.1 the enduring value of Chorus' initial PQ regulatory asset base (initial PQ RAB) including the value of the financial loss asset;
  - X2.2.2 the transitional value of the initial PQ RAB we will use for PQP1; and
  - X2.2.3 the approach to allocating costs and assets between Chorus' PQ regulated FFLAS and the other services Chorus provides for the purposes of the initial PQ RAB and forecast expenditure for PQP1.

X3 We invite submissions in response to this paper by 5pm on **8 July 2021** and cross submissions by 5pm on **22 July 2021**.

X4 Submissions can be made through the submission portal on our website at: https://comcom.govt.nz/file-upload-form-folder/file-upload-form.

Table X1 Decisions in our current processes and when we will decide them

Regulatory instrument	May 2021	August 2021	November 2021
Price-quality path (PQP1)	**Draft decisions** Revenue path Expenditure Quality standards Including indicative allowable revenue	**Draft decisions** Cost and asset allocation for expenditure Updated forecast allowable revenue **Final decisions** Chorus' transitional initial PQ RAB	**Final decisions** Revenue path Expenditure Cost and asset allocation for expenditure Quality standards Forecast allowable revenue
Chorus' initial PQ RAB		**Draft decisions** Chorus' initial PQ RAB	
Information disclosure (ID)	**Draft decisions** Disclosure requirements from 1 January 2022		**Final decisions** Disclosure requirements from 1 January 2022
Input methodology amendments	**Draft decisions** All proposed IM amendments	**Final decisions** Process IM amendments	**Final decisions** All other IM amendments

Estimated forecast allowable revenue

X5 Because we have yet to make draft decisions on the value of the initial PQ RAB and cost allocation, these values are estimates only. They illustrate the revenue implications of the draft decisions we have made. Note that all numbers in this paper are presented post-allocation (using Chorus' proposed allocations) unless otherwise stated.

X6 We have determined an indicative total forecast allowable revenue of $2,061.1m for Chorus over the three years of PQP1.[1] This forecast allowable revenue amount is composed of:[2]

X6.1 a 'building blocks revenue' amount of $2,020.4m;[3]

X6.2 a forecast allowance for pass-through costs of $40.8m;[4] and

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[1] In present value terms as at 1 January 2022. In nominal sum terms this equates to $2,219.3m

[2] *Fibre Input Methodologies Determination* 2020 [2020] NZCC 21, clause 3.1.1(2).

[3] In present value terms as at 1 January 2022, including in-period smoothing. In nominal sum terms this equates to $2,175.4m

[4] In present value terms as at 1 January 2022. In nominal sum terms this would equate to $43.9m. Consistent with the Fibre IMs and our proposed PQ determination, Chorus will be able to update these forecast values when demonstrating compliance with the revenue path.

X6.3 a wash-up amount of $0.[5]

X7 Estimated forecast allowable revenue is illustrated in Table X2 below.[6]

Table X2 Estimated forecast allowable revenue ($m nominal)[7]

Component	2022	2023	2024	PQP1 PV total
Building blocks revenue	675.2	729.6	770.7	2020.4
Pass-through costs	14.1	14.4	15.4	40.8
Wash-up amount	0.0	0.0	0.0	0.0
Total	**689.2**	**744.0**	**786.1**	**2061.1**

Building blocks revenue

X8 The largest component of forecast allowable revenue is 'building blocks revenue'. Building blocks revenue is an amount specified by the Commission in a PQ determination, and is composed of the relevant building blocks components.[8] Building blocks are components that reflect forecasts of Chorus' costs for the regulatory period, and certain regulatory adjustments (such as to smooth revenue over the PQP1 period).

X9 The indicative values of each building block are set out in Table X3 below. After that, we summarise key draft decisions and assumptions influencing these building blocks. Other values (such as the tax allowance or benefit of Crown finance) result purely from applying the fibre IMs and are not discussed here.

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5 As discussed below, the wash-up amount provided for in clause 3.1.1.(2)(c) will be zero for each year of the PQP1 period, as Chorus does not yet have a wash-up balance to draw down.

6 Note that forecast allowable revenue in 2023 and 2024 are determined based on actual, rather than forecast inflation. As such, the figures for those years are subject to change.

7 All annual numbers are nominal values, calculated based on each year's 'revenue date' (5 August, the date in the year where the present value is equivalent to 12 equal payments on the 20th of each month). The present value is as at 1 January 2022.

8 *Fibre Input Methodologies Determination 2020* [2020] NZCC 21, clause 1.1.4(2) – definition of 'building blocks revenue'.

Table X3 Draft building blocks revenue components ($m, nominal)

Component	2022	2023	2024
Total return on capital	139.8	115.1	100.8
Return on assets (RAB x WACC)	260.0	257.3	253.9
Revaluations	-78.7	-99.2	-109.5
Ex-ante stranding allowance	5.5	5.4	5.4
Benefit of Crown finance	-48.9	-50.4	-50.8
TCSD allowance	1.9	1.9	1.9
Opex allowance	154.1	150.1	146.0
Total depreciation	466.4	448.8	447.0
Core fibre assets	263.1	271.4	291.4
Financial loss asset	203.3	177.4	155.6
Tax allowance	0.0	0.0	0.0
In-period smoothing	-85.1	15.6	76.9
Total	**675.2**	**729.6**	**770.7**

Initial PQ RAB

X10 As noted above, we have not yet made a draft decision on the value of Chorus' initial PQ RAB and financial loss asset. We have outlined a separate process towards a draft decision on this in August. As part of our assessment, we are requesting further assurance through independent audit of Chorus' initial PQ initial RAB proposal.

X11 To calculate a meaningful estimate of building blocks revenue, we have applied Chorus' proposed values as provided for in this draft decision. Our current process anticipates we will publish our draft decision on Chorus' initial PQ RAB in August 2021.

X12 The value of the initial PQ RAB we have used is $5.5b, including a financial loss asset value of $1.5b.

Cost of capital and CPI for revaluations

X13 For our draft decision, we have applied a vanilla WACC of 4.66%, a post-tax WACC of 4.46%, and a cost of debt of 2.46%. This estimate was made as at 1 April 2021.

X14 The CPI values for the revaluation rate are based on the 24 February 2021 Monetary Policy Statement.

Expenditure forecasts

X15 We have proposed an opex allowance of $435.6m over the period. For base capex we have proposed an allowance of $535.2m. For connection capex, we have proposed a baseline allowance of $284m. These capex values are added to the forecast RAB over the regulatory period.

X16 We summarise these decisions in more detail below at paragraphs X27 to X32.

Depreciation

X17 For our draft decision we have proposed:

X17.1 for Chorus' core fibre assets, applying the default straight-line depreciation method with GAAP-based asset lives, consistent with clause 3.3.2(3) of the fibre IMs;[9] and

X17.2 for Chorus' financial loss asset, applying an alternative diminishing value depreciation method, with a reduced asset life of 14 years, as allowed for under clause 3.3.2(5) of the fibre IMs.

Revenue smoothing within the period

X18 We have proposed smoothing Chorus' revenue over the PQP1 period based on:

X18.1 forecasts of weighted average demand growth as proposed by Chorus; and

X18.2 the latest RBNZ CPI forecasts.

Table X4 Forecast rates of change for in-period smoothing

Value	2022-2023	2023-2024
Forecast CPI	1.9%	2.1%
Demand growth	6.1%	3.5%
Total[10]	**8.1%**	**5.6%**

Pass-through costs

X19 We have proposed allowing Chorus to update the values of any forecast pass-through costs on an annual basis.

[9] *Fibre Input Methodologies Determination 2020* [2020] NZCC 21, clause 3.3.2(2).

[10] Note: the total value is not a sum of the two rates of change, but a multiplicative approach (1+CPI)x(1+Q).

Approach to the revenue path

Revenue cap

X20 We propose the revenue cap will be based on requiring that:

X20.1 forecast total FFLAS revenue is less than or equal to;

X20.2 forecast allowable revenue.[11]

X21 Chorus would have to demonstrate compliance with this on a forecast basis, at the start of each year, with an update any time it changes its prices.

X22 We propose to smooth revenue within the regulatory period using an in-period smoothing building block. We have estimated a starting forecast allowable revenue for one year. We propose that the value of 'building blocks revenue' over the course of the period be allowed to increase at the value of actual CPI inflation rather than forecast inflation.

X23 We have not proposed introducing any other measures to control revenue.

Wash-up mechanism

X24 During the PQP1 period, Chorus will accrue a 'wash-up balance'.[12] This wash-up balance will be available to be drawn down in PQP2.[13] A single wash-up mechanism will cover all elements of the revenue path where an explicit wash-up is required.[14]

X25 In accordance with ss 195 and 196 of the Act, this wash-up will account for any under or over recovery of revenue due to differences between demand levels used to determine prices, and actual demand levels.

X26 We are proposing, as part of an IM amendment, to require the wash-up mechanism account for the factors in Table X5 below.

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[11] We have proposed amending the Fibre IMs to clarify that this assessment may happen on a forecast basis.

[12] Per clause 3.1.1(3), the value of this wash-up may be positive or negative.

[13] We have also considered a rolling draw down in PQP1, but as discussed in Attachment A, do not consider this appropriate as it would lead to unnecessary revenue volatility.

[14] The revenue path also has 'implicit' wash-ups, where two factors within the path 'hedge' one another. An example of this is the CPI implicit in the nominal WACC and the forecast revaluation rate.

Table X5 Proposed scope of the wash-up mechanism

Factor	Washed-up	Mechanism[15]	Rationale
PQP1 return on/of initial RAB	Yes	Wash-up (ARA side)	Maintains RFCM/limits excessive profits.
Connection capex volumes	Yes	Wash-up (ARA side)	Required by existing IMs.
Individual capex	Yes	Wash-up (ARA side)	Required by existing IM.
Benefit of Crown financing level/mix	Yes	Wash-up (ARA side)	Consistency with existing IMs and out incentive framework.
Pass-through costs	Yes	Wash-up (ARA side)	Consistency with existing IM policy intent.
Demand forecasts	Yes	Wash-up (ATFR side)	Required by section 196.

Expenditure

X27 Chorus forecasts that it will spend $642.1m in base capex, $335.4m in connection capex, and $487.8m in opex over PQP1.

X28 Our draft decision is to reduce Chorus' expenditure by $110m (16.6%) for the base capex allowance, $51.4m (15.3%) for the connection capex baseline allowance, and $52.2m (10.7%) for the opex allowance. We consider that $70.9m of Chorus' proposed base capex would be more appropriately applied for by way of individual capex proposals, subject to the thresholds being met for a proposal related to incentive payments as set out in Attachment G.

Base capex allowance

X29 Following our assessment of Chorus' proposal, our draft decision is to reduce the forecast base capex expenditure. We have:

X29.1 Excluded innovation expenditure that Chorus proposed as part of its Corporate and IT support expenditure category;

X29.2 Excluded the incentive payments included within base capex installations expenditure (noting that Chorus may submit an individual capex proposal for this expenditure);

X29.3 Updated the connections demand forecast which results in modest changes to network aggregation, network transport, and field sustain expenditure; and

[15] "ARA" side items are given effect to through the calculation of the "actual revenue allowance", "ATFR" side items are given effect to through "actual total FFLAS revenue.

X29.4 Made an overall reduction of 5%[16] to account for improvements in asset management, uncertainty within base year of forecasts, and the lack of justification within the labour cost modelling.

X30 These changes result in a lower base capex allowance with an overall reduction of 16.6% as against Chorus' base capex proposal. If we assume Chorus submits individual capex proposals for the excluded capex, which meet the thresholds and are subsequently approved, the net reduction in the base (and individual) capex allowance, relative to Chorus' base capex proposal, is 5.6%.

Table X6 Draft base capex decisions (all values in June 2020 real $)

Category	Our draft decision	Details
Installation expenditure (complex and standard installations)	$67.3m	Exclude $34.7m of incentive payments for existing connections from base capex.
IT and Support expenditure (Corporate, Business IT and Network & Customer IT)	$113.8m	Exclude $36m innovation expenditure from base capex and exclude $1m from Network and Customer IT base capex. We have also decided to exclude $21.3m from opex for efficiency benefits that result from the proposed IT investments.
Network Capacity (access base capex)	$71.7m (accept Chorus' proposed network access expenditure)	None of the proposed investments are avoidable long-term and all of them deliver long-term benefits to customers.
Network Capacity (aggregation and Transport)	$91.1m	Exclude $2.7m of proposed aggregation capex and $2.4m of proposed transport capex from the base capex allowance as a result of the change in the demand forecast.
Network Sustain and Enhance (Field sustain)	$61.2m	Exclude $1.9m of proposed expenditure from the base capex allowance as a result of the change in the demand forecast.
Base capex over-forecast adjustment	We have proposed to make an overall adjustment to the base capex allowance of 5%[17] or 28.2m[18] of the proposed expenditure.	This is to reflect over-forecasts in Chorus' proposal.

[16] This amount is a Commission calculation based on assessment of available information.

[17] This amount is a Commission calculation based on assessment of available information.

[18] This amount is a Commission calculation based on assessment of available information.

Connection capex baseline allowance

X31 Following our evaluation of Chorus' proposal, our draft decision is to reduce the connection capex baseline allowance, based on changes to the following items:

X31.1 A reduction of the forecast connection capex to reflect smoothed historical unit cost trends of $20.4m;

X31.2 A reduction in the forecast volumes based on the updated demand forecast, resulting in a $21.8m (6.5%) reduction in the allowance; and

X31.3 Removal of the incentive payments from the connection capex baseline allowance.

Table X7 Draft connection capex decisions (all values in June 2020 real $)

Category	Our draft decision	Details
Connection capex baseline allowance	Reduce the connection capex baseline allowance.	Reduction of the forecast connection capex to reflect smoothed historical unit cost trends of $20.4m. Reduction in the forecast volumes based on the updated demand forecast, resulting in a $21.8m (6.5%) reduction in the allowance.
Retention incentives capex (incentive payments)	Exclude the proposed expenditure of $9.2m for new connections incentive payments from the baseline connection capex allowance.	All incentive payments (both related to new and existing connections) should be assessed as an individual capex proposal.
Reduction in forecast volumes	Reduce the baseline connection capex in accordance with the alternative demand forecast.	Reduction of $21.8m in the connection capex baseline allowance.

Opex allowance

X32 We are proposing to reduce the opex allowance, based on changes to the following items:

X32.1 An adjustment to network maintenance to reflect historic trends;

X32.2 A reduction in corporate support expenditure; and

X32.3 An efficiency adjustment to overall opex to reflect the expected efficiency improvements from IT capital investment.

Table X8 Draft opex decisions (all values in June 2020 real $)

Category	Our draft decision	Details
Product Sales and Marketing	$70.4m	Accept Chorus' proposed expenditure.
Network Maintenance	$82.3m	Reduce Chorus' proposed expenditure by $9.0m for change in demand forecast.
Network Operations	$43.4m	Accept Chorus' proposed expenditure.
Corporate Support	$122.8m	Reduce Chorus' proposed expenditure by $21.8m to account for efficiencies.
Network Operating costs	$23.3m	Accept Chorus' proposed network operating expenditure.
Opex efficiency adjustment		Account for efficiency improvements from IT capex investments by reducing opex by $21.3m.

Reporting requirements for PQP1

X33 Our draft decision is to require Chorus to provide:

X33.1 An asset management development roadmap by 30 June 2022;

X33.2 A cost estimation/asset data improvement roadmap by 30 June 2022;

X33.3 An annual report on the progress against the asset management development roadmap and the cost estimation/data improvement roadmap;

X33.4 An updated engagement plan by 30 June 2022.

Quality standards

Table X9 Draft quality standard decisions

Draft decisions on quality	Proposed quality standard	Determination reference
Availability: average downtime Reporting differentiated by geography (POI Area)	Average unplanned downtime must not exceed, for a layer 1 aspect of a fibre network, 15 minutes in one or more calendar months in one or more POI area in each regulatory year.	Clause 8.1 Schedule 4
	Average unplanned downtime must not exceed, for a layer 2 aspect of a fibre network, 3 minutes in one or more calendar months in one or more POI area in each regulatory year.	Clause 8.2
	Downtime attributable to force majeure events and non-diverse transport services are excluded from standard.	Clause 4
Performance: port utilisation	For the performance quality standard applying for a regulatory year, the percentage of Chorus' ports experiencing port utilisation, upstream or downstream, equal to or exceeding 90% in any five-minute interval in one or more calendar months, must not exceed 0.1%.	Clause 8.3 Schedule 4
Customer Service	None	
Ordering	None	
Provisioning	None	
Switching	None	
Faults	None	

Optional quality dimensions

X34 We have not proposed quality standards for any of the optional quality dimensions provided for in the IMs, being faults, ordering, provisioning, switching, or customer service.

Availability quality standard

Quality standard

X35 For the availability quality dimension, we have determined an "average unplanned downtime" metric with the following quality standards:

X35.1 the average unplanned downtime for layer 1, must not exceed 15 minutes in one or more calendar months in one or more POI areas in each regulatory year; and

X35.2 the average unplanned downtime for layer 2, must not exceed 3 minutes in one or more calendar months in one or more POI areas in each regulatory year.

X36 We have used the service levels under the UFB contracts as a starting point in setting the proposed availability standard. We assume that the network has been built to this level, and that it is therefore appropriate to preserve this standard for PQP1. However, to account for the more serious consequences of a breach of a Part 6 standard, relative to the UFB contracts, we have included a 'buffer' above the UFB contract levels. This approach is consistent with the one we have taken when regulating quality in other sectors under part 4 of the Commerce Act.

X37 Downtime attributable to force majeure events and non-diverse transport services are excluded from the measurement of unplanned downtime.

X38 Force majeure events excluded from the availability quality standard include:

X38.1 fire, floods, storms, tempest, earthquake or other act of God;

X38.2 any act of a public enemy, war, riot, act of civil or military authority;

X38.3 nuclear, chemical or biological contamination; and

X38.4 any act of a third party (not being an employee, agent or subcontractor of that party) engaged in subversive or terrorist activity or sabotage.

Differentiation

X39 We have set two separate standards for layer 1 and layer 2 downtime. Within these standards, we also differentiate by POI area. In total, the availability standards are subject to a maximum of one breach per year per standard (layer 1 and layer 2). We have applied this annual approach to account for differences in the structure of the UFB contractual standards (which worked on a 'rolling' basis) and our PQ standards (where we consider an 'annual' approach appropriate).

X40 POI areas are UFB geographic areas listed in the Notice of points of interconnection under section 231 of the Telecommunications Act 2001 issued by the Commission on 19 December 2019.

Performance quality standards

Quality standard

X41 For the performance quality dimension, we have determined a "port utilisation" metric with the following quality standard:

X41.1 For the performance quality standard applying for a regulatory year, the percentage of Chorus' ports experiencing port utilisation, upstream or downstream, equal to or exceeding 90% in any five-minute interval in one or more calendar months, must not exceed 0.1%.

X42 This standard is set on a monthly basis and is subject to being breached a maximum of one time in a regulatory year (that is, if the standard is exceeded multiple times in a given regulatory year, it will only constitute one breach).

Differentiation

X43 We have not specified differentiated reporting requirements for the performance quality standard.

Incentives and compensation

X44 Our draft decision is not to implement a revenue-linked incentive (reward or penalty) or compensation scheme for PQP1.

Reporting and compliance

X45 We propose that Chorus must report on all quality standards once at the end of each regulatory year.

X46 Where any standard is breached, Chorus would also have to publish a breach report in respect of all exceedances of the quality standards during that year. Chorus would be required to produce this report following the end of the year where the breach occurred. The report must contain an explanation of the breach, including the cause and action taken to remedy the breach.

Chapter 1 Introduction

Purpose of this paper

1.1 This paper outlines our draft decisions for Chorus' price-quality path from 1 January 2022.

1.2 From 1 January 2022, providers of regulated fibre fixed line access services (FFLAS) will be subject to new forms of regulation under Part 6 of the Telecommunications Act 2001 (the Act).[19]

1.3 The Commerce Commission (the Commission) is responsible for determining these elements of the regulatory framework, which are information disclosure (ID) regulation and price-quality (PQ) regulation. This paper is concerned with PQ regulation. The ID draft decisions are contained in a separate paper.[20]

1.4 Pursuant to regulations made under s 226 of the Act, Chorus is subject to PQ regulation, except in respect of areas where it supplies FFLAS in competition with other regulated FFLAS providers.

1.5 We are publishing this draft decision with the objective of seeking feedback on the decisions we have proposed.

1.6 We invite submissions in response to this paper by 5pm on 8 July 2021 and cross submissions by 5pm on 22 July 2021. You can find details on how to submit at the end of this chapter.

Structure of this paper

1.7 To achieve these objectives, the remainder of this paper discusses:

1.7.1 in Chapter 2, the requirements in the Act, the decision-making framework we have applied in reaching our decisions, and the economic principles and incentives framework we have considered when applying our decision-making framework;

1.7.2 in Chapter 3, the estimates of forecast allowable revenue we have proposed for PQP1;

1.7.3 in Chapter 4, our draft decisions on Chorus' opex, base capex, and connection capex allowances for PQP1, and the process we have applied for setting these allowances; and

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[19] Unless stated otherwise all references to statutory provisions in this paper are references to statutory provisions under the Telecommunications Act 2001.

[20] Commerce Commission "Fibre Information Disclosure Draft Decisions – Reasons Paper" (27 May 2021).

1.7.4 in Chapter 5, the quality standards we propose for PQP1.

1.8 The Attachments in this paper discuss technical aspects of our draft decisions in detail.

Materials we have published alongside this paper

1.9 Alongside this paper, we have published:

1.9.1 a draft PQ determination and compliance notice under s 193(2) of the Act;

1.9.2 the Commission's 'demonstration' building blocks model, and a dummy-data version of Chorus' building blocks model;

1.9.3 supporting information from Chorus related to its alternate depreciation proposal; and

1.9.4 a draft decision and draft determination for proposed amendments to the fibre IMs.

1.10 As noted above, we have also published our draft decisions on information disclosure.

Process we are following

1.11 The timeline for the process we are currently following is set out in Table 1.1 below. After that, we explain the scope of the draft decisions we have made in this paper, compared to the decisions we will make in August 2021, and how we plan for those to flow into our final PQ decision in November 2021, and final initial PQ RAB decision in 2022.

Table 1.1 Current process we are following

Phase	Timing	Scope
Initiation *Complete*	Q4 2020 to Q1 2021	Process and approach paper Submissions on process and approach paper Chorus PQP1 information request and proposal Consultation on Chorus PQP1 expenditure proposal Submissions on PQP1 expenditure proposal Stakeholder workshop on quality of service
Process update and initial PQ RAB proposal *Complete*	30 April 2021	Process update paper Potential IM amendment NOI Publication of Chorus' initial PQ RAB proposal Consultation on Chorus' initial PQ RAB proposal Submissions on Chorus' initial PQ RAB proposal (four weeks)
Draft PQ and ID decisions *Now*	27 May 2021	ID draft decisions PQP1 draft quality, expenditure, and depreciation decisions Potential August 2021 and November 2021 IM amendment draft decisions Submissions on potential August 2021 IM amendment draft decisions (four weeks) Submissions on ID, PQP1 and potential November 2021 IM amendment draft decisions (six weeks) Cross-submissions on draft decisions (two weeks)
PQP1 WACC determination	By 31 July 2021	Publication of final PQP1 WACC determination
Draft initial PQ RAB decision	By 31 August 2021	Initial PQ RAB draft decision Final decisions on potential August 2021 IM amendments Transitional PQ RAB decision Submissions on draft initial PQ RAB (four weeks) Cross-submissions on draft initial PQ RAB (two weeks)
Final PQP1 expenditure decisions	November 2021	Final decisions on base capex, connection capex, and opex allowances (including cost allocation). *Note: this requires an amendment to the IMs, which we have proposed in our draft IM amendments.*
Final PQ and ID decisions	November and December 2021	Final decisions on potential November 2021 IM amendments Final decisions on Chorus expenditure Final PQP1 decisions (including cost allocation) Final ID decisions
Final Initial RAB decisions	2022	Draft decisions on other LFC initial ID RABs and the ID RAB and ID-only RAB for Chorus Final decisions on all financial loss assets and determination of all initial RABs Disclosure of all initial RABs

1.12 We are planning on consulting on price-quality in two tranches. This paper includes our draft decisions on:

1.12.1 how Chorus' revenue path will operate;

1.12.2 the treatment of depreciation for Chorus' assets;

1.12.3 expenditure allowances; and

1.12.4 quality standards.

1.13 As set out in our current process, our remaining draft decisions will be contained in a paper we intend to publish in August:

1.13.1 the value of Chorus' initial PQ RAB including the value of the financial loss asset - to be finalised in 2022; and

1.13.2 the approach to allocating costs between Chorus' PQ regulated FFLAS and the other services Chorus provides.

1.14 This split in the process is because we need more time to properly assess the initial PQ RAB, noting that we have:

1.14.1 run a separate consultation round on the initial PQ RAB since receiving Chorus' proposed value on 26 March 2021, with submissions closing on 28 May 2021; and

1.14.2 allowed Chorus more time to comply with some of our audit requirements that were not included when Chorus provided its proposed initial PQ RAB.

1.14.2.1 To date, Chorus has not provided an independent audit of its initial PQ RAB proposal that reconciles the fixed asset inputs of Chorus' RAB model back to Chorus' financial reports.

How you can provide your views

Scope of submissions

1.15 We are interested in your views on our draft decisions on expenditure allowances, depreciation, quality standards, the implementation of the revenue cap, and on our application of the scope of FFLAS and implementation of the s 226 regulations.

1.16 We are not seeking views on the value of the initial PQ RAB and on cost allocation at this stage. We have already sought views on Chorus' proposal for these matters and will seek views on our draft decisions in future.

Process and timeline for making submissions

1.17 Submissions can be made through the submission portal on our website at: https://comcom.govt.nz/file-upload-form-folder/file-upload-form.

1.18 The project page will direct you to a form with instructions on how to upload your submission. Your submission should be provided as an electronic file in an accessible form.

1.19 We invite submissions in response to this paper by 5pm on **8 July 2021** and cross submissions by 5pm on **22 July 2021**.

Confidentiality

1.20 The protection of confidential information is something the Commission takes seriously. To continue to protect confidential submissions, we are trialling a new submission process. This will require you to upload your submission via the form on the project page. The process requires you to provide (if necessary) both a confidential and non-confidential/public version of your submission and to clearly identify the confidential and non-confidential/public versions.

1.21 When including commercially sensitive or confidential information in your submission, we offer the following guidance:

1.21.1 Please provide a clearly labelled confidential version and public version. We intend to publish all public versions on our website.

1.21.2 The responsibility for ensuring that confidential information is not included in a public version of a submission rests entirely with the party making the submission.

1.21.3 Please note that all submissions we receive, including any parts that we do not publish, can be requested under the Official Information Act 1982. This means we would be required to release material that we do not publish unless good reason existed under the Official Information Act 1982 to withhold it. We would normally consult with the party that provided the information before any disclosure is made.

Chapter 2 Regulatory framework

Purpose and structure of this chapter

2.1 This chapter describes the legal requirements under Part 6 for determining PQP1 for Chorus and the economic framework we will apply for making our decisions. The chapter is structured as follows:

2.1.1 Overall legal framework; and

2.1.2 Economic framework.

Overview of PQ regulation

2.2 This section provides an overview of the price-quality regulatory regime under Part 6.

The ultra-fast broadband initiative

2.3 Part 6 is a utility-style regulatory framework modelled on the Part 4 framework under the Commerce Act 1986. It is designed to replace the current framework, where the provision of fibre services by regulated providers under the UFB initiative is governed by UFB contracts with Crown Infrastructure Partners (CIP).

2.4 In some instances, the Act expressly directs us to consider requirements of the UFB initiative, including when we calculate the initial RAB under s 177 or specifying the initial points of interconnection (POIs) under s 231. There are other cases where aspects of the price or non-price terms of services are rolled over beyond the implementation date. For example, where regulations are issued in respect of anchor services under s 227, discussed at paragraph 2.36 below).

2.5 In a more general sense, the characteristics of the market have been shaped by features of the UFB initiative, such as the effect of Crown subsidies, discussed at paragraph 2.63 below. However, we expect this influence to reduce as the Part 6 framework develops and we move beyond the first regulatory period.

Regulations under s 226

2.6 Under s 226, the Governor-General may make regulations prescribing a person who provides FFLAS as being subject to ID regulation, PQ regulation, or both. Regulations under s 226 must also describe the services in respect of which the person is subject to ID regulation, PQ regulation, or both.[21]

[21] Section 226(2)(b).

2.7 The Telecommunications (Regulated Fibre Service Providers) Regulations 2019 provides that Chorus will be subject to PQ regulation for all FFLAS except to the extent that a service is provided in a geographical area where a regulated provider (other than Chorus) has installed a fibre network as part of the UFB initiative.[22]

2.8 Regulations under s 226 determine the scope for PQ regulation including for the PQ RAB and have implications for other provisions in the Act, such as obligations for Chorus to provide regulated services under ss 198-200 and maintain geographic consistency of pricing under s 201. We discuss these matters in more detail from paragraphs 2.20 and 2.36 below.

2.9 In our "Fibre input methodologies: Main final decisions reasons paper" (IMs reasons paper), we indicated that we will make decisions regarding how we will implement the regulations made under s 226, including how we specify the geographic areas where PQ regulation applies, in our process for setting PQ and ID regulation.[23]

2.10 Further, in our proposed process and approach paper for the first regulatory period paper (PQ approach paper) we noted neither the Act nor the Regulation prescribe how the Commission should identify where an LFC has installed a fibre network under the UFB initiative or what it means for an LFC to have "installed a fibre network".

2.11 In our PQ approach paper, we considered the contracted UFB candidate (coverage) areas would be useful starting point for identifying the geographic areas where Chorus' FFLAS would be exempt from PQ regulation but remain subject to ID regulation.[24]

2.12 The contracted UFB candidate areas are where the regulated providers were required to construct fibre network under the UFB initiative. As the regulated providers have completed their fibre network builds, their as-built UFB fibre network coverage areas provide a fixed starting reference for identifying the relevant geographic areas where Chorus' FFLAS will be exempt from regulation but not ID regulation.

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[22] The Telecommunications (Regulated Fibre Service Providers) Regulations 2019 were made on 18 November 2019, and notified in the Gazette on 21 November 2019.

[23] Commerce Commission "Fibre input methodologies: Main final decisions – reasons paper" (13 October 2020), paragraph 2.69.

[24] Fibre Information disclosure and price-quality regulation – proposed process and approach for the first regulatory period" (15 September 2020), Section 6.

2.13 However, as discussed in our PQ approach paper the contracted UFB candidate (coverage) areas are unlikely to provide the complete picture as there are likely be differences between the UFB contracted and as-built network coverage areas. The UFB contracts anticipated developments such as an adjacent greenfield property development would be accommodated in the network build.

2.14 The contracted UFB coverage areas may not, therefore, provide enough information on the location of the regulated providers' fibre networks to enable us to determine the geographical areas where Chorus is exempt from PQ regulation under regulation 6.

2.15 As the contracted UFB candidate areas are unlikely to provide enough information we sought feedback whether the database we developed for determining specified fibre areas under s 69AB could also be used to assess and determine the geographic areas where PQ regulation applies and does not apply. Under s 69AB, the Commission was required by 1 January 2020 to determine the geographical areas in which specified fibre services are available to end-users, a perquisite to enabling Chorus to withdraw copper services to end-users under the copper withdrawal code. Submissions receive on our PQ approach paper were generally supportive of this approach. However, Chorus indicated its support for us using information we have obtained from regulated providers for constructing the database but not for using the database to determine the extent of PQ regulation, as it was developed for a different purpose.[25]

2.16 We need to exercise judgement when assessing the extent of the geographic areas where Chorus FFLAS will be exempt from PQ regulation. Our assessment will be based on available information while considering what gives best effect to the purposes of Part 6 set out in s 162(b) and (c) and s 166(2)(b).

2.17 To implement the regulations made under s 226 in our process for setting PQ regulation, our work has focussed on ensuring the approach Chorus has applied to defining the geographic scope of PQ FFLAS and whether this is consistent with the approach we proposed in our process and approach paper. This predominantly relates to allocating costs to PQ FFLAS versus ID-only FFLAS. We intend to address this in our August initial PQ RAB and cost allocation decisions.

[25] Chorus "Submissions on PQID process and approach paper" (14 October 2020).

2.18 We are confirming our intention to apply the process described in our approach paper.[26] One exception is the treatment of aggregated services where our approach, based on the location of end-users who are the ultimate recipients of FFLAS, was not able to be applied for aggregated services.[27] Here we are proposing to adopt a proposal from Chorus which is outlined in Attachment J: Application of Reg 6 to aggregated FFLAS.

2.19 We are undertaking a more detailed assessment for how this has been applied to cost allocation, which we intend to consult on in August.

Section 201

2.20 Section 201 provides that a regulated provider who is subject to PQ regulation must charge the same price for providing FFLAS that are in all material respects the same, regardless of the geographic location of the access seeker or end-user.

2.21 In our view, the requirement to offer geographically consistent pricing only applies to services that are subject to PQ regulation.[28] The consequence is that where Chorus supplies FFLAS using assets located in or near geographical areas where other LFCs have installed networks under the UFB initiative (in this paper, we refer to these as "LFC UFB areas"), Chorus is not subject to PQ regulation and is not required to supply FFLAS on a geographically consistent basis.

2.22 Section 201 was intended to require Chorus to "charge the same price for a fibre service regardless of the location of the customer … to ensure comparable pricing for all customers, and to discourage 'pocket pricing', where a regulated fibre provider could strategically drop prices in a geographic area to undermine competition." It was so designed to avoid widening of the "digital divide", by requiring Chorus to charge the same price to rural and urban customers.[29]

Our general focus for the application of s 201 is the location of the end-user

2.23 The majority of Chorus' FFLAS are subject to PQ regulation and must therefore be supplied on a geographically consistent basis.

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[26] Commerce Commission "Fibre Information disclosure and price-quality regulation – proposed process and approach for the first regulatory period" (15 September 2020), Section 6.

[27] Chorus, Chorus submission on "Fibre input methodologies – further consultation draft reasons paper" 13 August 2020.

[28] Our view remains the same as stated in our final reasons paper: Commerce Commission "Fibre input methodologies: Main final decisions – reasons paper" (13 October 2020), paragraph 2.71.

[29] Telecommunications (New Regulatory Framework) Amendment Bill: Departmental Report to the Economic Development, Science and Innovation Committee – Initial Briefing (10 April 2018), at [74]-[77].

2.24 The dividing line between PQ regulation and ID-only regulation under reg 6 depends on whether a service is provided in a geographical area where an LFC other than Chorus has installed a network under the UFB initiative.

2.25 In our view, the language of reg 6, interpreted in light of its purpose, points to the location of the end-user as determining where the service was provided and thus whether PQ regulation or ID-only regulation apply. In particular, the rationale for price regulation of FFLAS depends on the competitive dynamic (or lack thereof) in respect of the end-users who are the ultimate recipients of the service, and who are the focus of the purposes set out in section 166(2) of the Act. The underlying purpose of reg 6 is to exempt Chorus from PQ regulation where it is subject to competitive constraints from other LFCs in respect of end-users.[30]

2.26 This approach is straightforward to apply for certain FFLAS. For example, for bitstream services that are supplied to identifiable end-users located in an LFC UFB area where the service is provided, PQ regulation does not apply, and as a result, Chorus would not be required to adhere to geographically consistent pricing for those FFLAS.[31]

2.27 The situation is more nuanced when it comes to services that support multiple (and possibly dispersed) end-users. We have considered how reg 6 and s 201 apply to different categories of aggregated services in Attachment J.

Relevance of our draft decision on the application of the s 226 regs for the initial RAB and the application of s 201

2.28 Our draft decision regarding how the reg 6 proviso applies to different categories of FFLAS (set out in Attachment J) is significant for the determination of the initial RAB and the application of s 201.

2.29 The question of whether FFLAS in a particular geographical location are subject to PQ or ID regulation determines whether s 201 applies (ie, per our draft guidance, only services subject to PQ regulation will be subject to the s 201 requirement). Similarly, whether a service is subject to PQ regulation, in turn, determines whether the assets associated with delivering that service are in the PQ RAB or the ID RAB. For example, the PQ RAB will be comprised of assets that are used to deliver PQ services.

2.30 We intend to address this issue in August as part of the draft initial PQ RAB decisions.

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[30] Commerce Commission "Fibre Input Methodologies – main final decisions reasons paper" (13 October 2020), paragraph 2.63.

[31] Chorus "Submission on Fibre input methodologies – further consultation draft reasons paper" (13 August 2020), paragraph 10.

Scope of FFLAS

2.31 The concept of FFLAS, and Chorus' PQ FFLAS, is central to setting the scope of our PQ regulation under Part 6. We discussed this concept and listed service categories offered by regulated providers that we regard as comprising FFLAS in the IM reasons paper.

2.32 In the IMs reasons paper, we indicated that we will reach a final view on what individual services come within the definition of FFLAS (including the exact nature of services that will be considered "connection services") when we make our PQ and ID determinations.[32]

2.33 We have considered the individual services Chorus has included as part of FFLAS and asked it to provide a list of services matched against the categories of services we set out in the IMs final decision (Voice services, Bitstream PON services, Unbundled PON services, Point-to-point services, Transport services, Co-location and interconnection services, Connection services). This is outlined in Attachment I.

2.34 We note that some of the services are allocated wholly to FFLAS and some are allocated in part. For example, there remain questions about the level of CRT allocated to PQ FFLAS. As this decision primarily affects cost allocation decisions, we intend to make a draft decision on that in August.

2.35 We are interested in your views on the completeness, accuracy and categorisation of Chorus services.

Declared services

2.36 Section 193(1)(b) provides that regulated providers that are subject to PQ regulation must comply with ss 198 to 201. Further, s 215(2)(b) states that failing to comply with ss 198 to 201 constitutes a contravention of a PQ requirement.

2.37 The Act provides for regulations made under ss 227 to 229 to declare certain FFLAS as anchor services (s 227), direct fibre access services (DFAS) (s 228) and unbundled fibre services (s 229) (declared services). Once services are declared, ss 198 to 200 provide that regulated providers that are subject to PQ regulation will have to provide the declared services and comply with any prescribed maximum prices and conditions.

[32] Commerce Commission "Fibre input methodologies: Main final decisions – reasons paper" (13 October 2020), paragraphs 2.107 and 2.139.

2.38 [redacted] The exposure draft provides for a bitstream2 accelerate (100/20Mbps) and voice only FFLAS as being anchor services, and also a DFAS. The exposure draft prescribes a description of, and conditions for the declared services based on the terms set out in the UFB contracts, including service levels and service default payments.[33] At this time, regulations have not been proposed under s 229 that would declare an unbundled fibre service.

2.39 When imposed, declared services may act as an additional control on the revenues Chorus can earn and the quality of services it provides. We explain how the declared services have impacted on our draft decisions for the revenue path and quality standards in Chapters 3 and 5 respectively.

2.40 We expect regulations for the declared services will be finalised and declared prior to our final PQ determination (currently scheduled for November 2021). To the extent the final form of the declared services regulations materially differ from the exposure draft outlined above, in a way that materially affects our decisions for PQ regulation, we may need to consult further with interested parties.

Undertakings under subpart 2 of Part 4AA

2.41 Subject to any modifications under ss 206 and 230,[34] Chorus' supply of PQ FFLAS must also comply with the undertakings it has given under s 156AD (fibre deeds). The Chorus fibre deeds require:

2.41.1 non-discrimination in relation to the supply of wholesale telecommunications services provided using, or that provide access to unbundled elements of its fibre network;

2.41.2 design and build of the fibre network in a way that enables equivalence in relation to the supply of unbundled layer 1 services on or after 1 January 2020 for UFB1 and 1 January 2026 for UFB2; and

2.41.3 equivalence in relation to the supply of unbundled layer 1 services on or after 1 January 2020 for UFB1 and 1 January 2026 for UFB2.

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[33] For anchor services and DFAS, clauses 14(3) and 15(3) of Schedule 1AA of the Act provide that the declared services must not be materially different from the terms set out in a UFB contract.

[34] Under s 206, on or after the implementation date, Chorus will not be required to achieve price equivalence in relation to the supply of an unbundled layer 1 service to the extent that the service is an input to a service that is subject to a prescribed maximum price under Part 6 that is not a cost-based price. In addition, under s 230, if services are declared under ss 228 and/or 229, then the Governor-General may make regulations discharging a regulated provider from its obligations to supply a service under a s 156AD undertaking.

2.42 The concept of FFLAS is broad enough to cover all of the services supplied under the fibre deeds and therefore Chorus must also supply PQ FFLAS in accordance with the equivalence, non-discrimination and supply obligations under the fibre deeds.

We must make our first PQ determination before the implementation date

2.43 We are required to make a PQ determination before the implementation date (1 January 2022) which specifies how PQ regulation applies to Chorus during the first regulatory period. The first regulatory period lasts from 1 January 2022 until 31 December 2024.[35]

The purpose of PQ regulation

2.44 The purpose of PQ regulation is to regulate the price and quality of FFLAS provided by regulated providers.[36]

Mandatory decision-making considerations that apply for our first PQ determination

2.45 When making our first PQ determination and decisions that form part of our determination, we must consider certain matters specified in s 166(2) of the Act.[37]

2.46 Section 166(2) reads:[38]

> "166 Matters to be considered by Commission and Minister
>
> […]
>
> (2) The Commission… must make the recommendation, determination, or decision that the Commission… considers best gives, or is likely to best give, effect—
>
> (a) to the purpose in section 162 of the Act; and
>
> (b) to the extent that the Commission… considers it relevant, to the promotion of workable competition in telecommunications markets for the long-term benefit of end-users of telecommunications services."

2.47 The purpose of Part 6 of the Act, as specified in s 162, reads:

> "162 Purpose
>
> The purpose of this Part is to promote the long-term benefit of end-users in markets for fibre fixed line access services by promoting outcomes that are consistent with outcomes produced in workably competitive markets so that regulated fibre service providers—
>
> (a) have incentives to innovate and to invest, including in replacement, upgraded, and new assets; and

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[35] Section 207(1).

[36] Section 192.

[37] Commerce Commission "Fibre input methodologies: Main final decisions – reasons paper" (13 October 2020), paragraphs 2.206-2.271.

[38] Section 166(2).

(b) have incentives to improve efficiency and supply fibre fixed line access services of a quality that reflects end-user demands; and

(c) allow end-users to share the benefits of efficiency gains in the supply of fibre fixed line access services, including through lower prices; and

(d) are limited in their ability to extract excessive profits."

2.48 We discuss our interpretation of the s 162 and s 166 purpose statements in more detail in paragraphs 2.49-2.50 and our approach for explaining our PQ draft decisions consistent with the s 166(2) purposes in paragraphs 2.51-2.53. A comprehensive explanation of our views on the purpose statements in the Act can be found in our IMs reasons paper.[39]

2.49 In *Wellington International Airport Ltd & Ors v Commerce Commission*, the High Court discussed the purpose and operation of s 52A of the Commerce Act 1986 (the equivalent provision under Part 4 of the Commerce Act) in detail. Consistent with the High Court's analysis, we consider that:

2.49.1 we must promote the long-term benefit of FFLAS end-users by promoting the s 162(a)-(d) outcomes consistent with what would be produced in workably competitive markets.[40] Our focus is not on replicating all the potential outcomes of workably competitive markets as such, but rather with specifically promoting the s 162(a)-(d) outcomes for the long-term benefit of FFLAS end-users, consistent with the way those outcomes are promoted in workably competitive markets; and

2.49.2 The objectives in s 162 (a) to (d) are integral to promoting the long-term benefit of end-users, and reflect key areas of regulated provider performance that characterise workable competition. None of the objectives are paramount and, further, the objectives are not separate and distinct from each other, or from s 162 as a whole. Rather, we must balance the s 162(a)-(d) outcomes,[41] and must exercise judgement in doing so. When exercising this judgement, we are guided by what best promotes the long-term benefit of end-users.[42]

2.50 We must exercise our judgement on a case by case basis and make the following observations about the relationship between the two objectives in s 166(2) of the Act.

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[39] Commerce Commission "Fibre input methodologies: Main final decisions – reasons paper" (13 October 2020), paragraphs 2.206-2.271.

[40] *Wellington International Airport Ltd & Ors v Commerce Commission* [2013] NZHC 3289 at [25] – [27].

[41] *Wellington International Airport Ltd & Ors v Commerce Commission* [2013] NZHC 3289 at [684].

[42] *Wellington International Airport Ltd & Ors v Commerce Commission* [2013] NZHC 3289 at [684].

2.50.1 We must make an assessment on what decision will best give effect to the statutory purposes and the outcomes we are required to promote by s 166. This requires an evaluative judgement.

2.50.2 Section 166(2)(a) directs us to make decisions that best give effect to the purpose in s 162. This is a mandatory consideration.

2.50.3 We are also required to make decisions that best give effect to the outcome in s 166(2)(b). This is also a mandatory consideration, but only in cases where we consider that it is 'relevant'. In assessing whether the promotion of workable competition is relevant, we will consider whether a decision has the potential to affect the level of competition in one or more telecommunications markets.

2.50.4 Section 166(2) does not establish a hierarchy between the promotion of the two outcomes. Where we consider that the promotion of competition is relevant, we must strive to make the decision that best gives, or is likely to best give effect, to both the promotion of outcomes consistent with workable competition for the benefit of end-users of FFLAS under s 162, and to the promotion of competition in telecommunications markets for the benefit of end-users in those markets under s 166(2)(b).

2.51 While all PQ decisions must best give, or be likely to best give, effect to the s 166(2) purposes, in certain cases, rather than requiring us to exercise judgement, some of our decisions may only require:

2.51.1 the application of IMs (for instance, determining the cost of capital for a regulatory period)[43] which were determined because they best give, or are likely to best give, effect to the s 166(2) purposes: and

2.51.2 the application of mandatory requirements in the Act (for instance, the regulatory period to which the first PQ path applies).[44]

2.52 Where certain PQ draft decisions do not require us to exercise judgement, we have not specifically explained those decisions by reference to the s 166(2) purposes. Rather, we have explained those decisions by referencing our specific obligations under the IMs or the Act.

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[43] Fibre Input Methodologies (initial value of financial loss asset) Amendment Determination 2020 [2020] NZCC 24 (3 November 2020), Subpart 5 of Part 3 of Attachment B.

[44] Section 194(2)(a).

2.53 Where our PQ draft decisions require us to exercise judgement (for instance, our evaluation of Chorus' capex proposal under the Capex IM[45] or the determination of quality standards that must be met by Chorus),[46] we have explained why those decisions best give, or are likely to best give, effect to the s 166(2) purposes.

Matters that must be included in our first PQ determination

2.54 As a regulated provider that will be subject to PQ regulation, Chorus must from 1 January 2022:[47]

2.54.1 apply the "PQ path" set by us in a determination made under s 170 of the Act, which includes:

2.54.2 the maximum revenues that Chorus may recover from its regulated FFLAS, as explained in paragraph 2.56;[48] and

2.54.3 the minimum quality standards that must be met by Chorus as explained in paragraph 2.71;[49]

2.54.4 provide an anchor service if an anchor service has been declared;[50]

2.54.5 provide a DFAS if a DFAS has been declared;[51]

2.54.6 provide an unbundled fibre service if a point-to-multipoint layer 1 service supplied to end-users' premises or buildings has been declared an unbundled fibre service;[52] and

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[45] Fibre Input Methodologies (initial value of financial loss asset) Amendment Determination 2020 [2020] NZCC 24 (3 November 2020), clause 3.8.5 of Attachment B.

[46] Section 194(2)(c).

[47] Section 193(1)

[48] Sections 194(2)(b)(ii) and 195(1). This form of control will also apply to Chorus' second PQ path by virtue of the operation of s 195, s 209 and s 225.

[49] Section 194(2)(c).

[50] Sections 193(1)(b) and s 198. Under s 227(1) of the Act, the Governor-General may, by Order in Council made on the recommendation of the Minister of Broadcasting, Communications and Digital Media, make regulations declaring a FFLAS to be an anchor service.

[51] Sections 193(1)(b) and s 199. Under s 228(1) of the Act, the Governor-General may, by Order in Council made on the recommendation of the Minister of Broadcasting, Communications and Digital Media, make regulations declaring a FFLAS to be a DFAS.

[52] Sections 193(1)(b) and s 200. Under s 229(1) of the Act, the Governor-General may, by Order in Council made on the recommendation of the Minister of Broadcasting, Communications and Digital Media, make regulations declaring a point-to-multipoint layer 1 service supplied to end-users' premises or buildings to be an unbundled fibre service.

2.54.7 regardless of the geographic location of the access seeker or end-user, charge the same price for providing FFLAS that are, in all material respects, the same.[53]

2.55 Our first PQ path in respect of Chorus must also specify:

2.55.1 the regulatory period (1 January 2022 to 31 December 2024);[54]

2.55.2 the date on which the PQ path takes effect (1 January 2022);[55] and

2.55.3 the date or dates by which compliance must be demonstrated, where our approach at this time to monitoring compliance is explained in Attachment A in respect of maximum revenues, and Chapter 5 in respect of quality standards.[56]

Allowable revenues

2.56 As a regulated provider that will be subject to PQ regulation, Chorus must from 1 January 2022 apply the PQ path set by us and must not exceed the maximum revenues specified by us.[57] In our IM final decisions, we decided to specify and define "maximum revenues" in the form of a revenue cap. Under the revenue cap, in each year of the regulatory period, total FFLAS revenue recovered by Chorus must not exceed its "allowable revenue".[58]

2.57 We have proposed IM amendments to clarify that this assessment is done on a forecast basis. For the remainder of this paper, we use the term "forecast allowable revenues" instead of the term used in Part 6 - "maximum revenues" to describe the revenue which Chorus may recover from its regulated FFLAS.

2.58 In determining forecast allowable revenues which Chorus may recover from its regulated FFLAS:

2.58.1 we must apply our IMs to determine key inputs, as described in paragraph 2.59;

2.58.2 we must reflect the actual financing costs incurred by Chorus in respect of Crown financing, as described in paragraphs 2.63-2.64;

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[53] Sections 193(1)(b) and s 201.

[54] Section 194(2)(a).

[55] Section 194(2)(d).

[56] Section 194(2)(e).

[57] Section 194(2)(b)(ii).

[58] Commerce Commission "Fibre input methodologies: Main final decisions – reasons paper" (13 October 2020), paragraph 9.13.

2.58.3 we must from the second regulatory period onwards (until the regulatory periods that start on or after the reset date)[59] apply a wash-up mechanism, as described in paragraphs 2.66-2.68;

2.58.4 we must (where "necessary or desirable") smooth revenues, as described in paragraphs 2.69-2.70;[60] and

2.58.5 we may reduce/increase allowable revenues depending on how Chorus has performed against the quality standards, as described in paragraphs 2.73.1-2.73.2 and 2.74.

Input methodologies

2.59 To determine key inputs for the calculation of forecast allowable revenues under the PQ path, the following IMs must be applied:[61]

2.59.1 cost allocation;[62]

2.59.2 asset valuation (including the financial loss asset);[63]

2.59.3 taxation;[64]

2.59.4 cost of capital;[65]

[59] Under s 196(3), we may (but are not required to) apply the wash-up mechanism in a PQ path for a regulatory period that starts on or after the reset date.

[60] We may also decide to alter the profile of revenue recovery for reasons other than smoothing as required by s 197. Examples of this are in-period revenue smoothing, or changing the profile of depreciation.

[61] Under s 175(b)(ii) of the Act, we must apply the IMs in determining the prices applying to FFLAS.

[62] The cost allocation IM for PQ paths is specified in Fibre Input Methodologies (initial value of financial loss asset) Amendment Determination 2020 [2020] NZCC 24 (3 November 2020), Subpart 2 of Part 3 of Attachment B.

[63] The asset valuation IM for PQ paths is specified in Fibre Input Methodologies (initial value of financial loss asset) Amendment Determination 2020 [2020] NZCC 24 (3 November 2020), Subpart 3 of Part 3 of Attachment B. Subpart 3 of Part 3 Attachment B requires a determination of the "opening RAB value" for the financial loss asset in accordance with Schedule B of Attachment B of the IMs. The methodologies for determining the "opening RAB value" of the financial loss asset under clause 3.3.1(8)(d)-(e) of Attachment B of the IMs are specified in Schedule B of Attachment A. Schedule B of the IMs includes a section for the asset valuation (Section 2), cost allocation (Section 3), taxation (Section 4) and cost of capital (Section 5) IMs used to determine the "opening RAB value" of the financial loss asset.

[64] The taxation IM for PQ paths is specified in Fibre Input Methodologies (initial value of financial loss asset) Amendment Determination 2020 [2020] NZCC 24 (3 November 2020), Subpart 5 of Part 3 of Attachment B.

[65] The cost of capital IM for PQ paths is specified in Fibre Input Methodologies (initial value of financial loss asset) Amendment Determination 2020 [2020] NZCC 24 (3 November 2020), Subpart 5 of Part 3 of Attachment B.

2.59.5 regulatory processes and rules, specifically the specification and definition of prices;[66] and

2.59.6 capex.[67]

2.60 Alongside these draft PQ decisions, we have also proposed several IM amendments that:

2.60.1 enable incremental improvements to PQ regulation;

2.60.2 implement our proposed approach to determining Chorus' initial PQ RAB;

2.60.3 enhance certainty about the rules, requirements and processes that apply to PQ paths;

2.60.4 and correct technical errors.

2.61 Our draft PQ decisions in this paper apply the IMs as we propose to amend them. The exception to this is the assumptions we have made about the initial PQ RAB as an input to our building blocks model (where rather than applying the IMs we have adopted Chorus' proposal for illustrative purposes).

2.62 Our final PQ decision must apply the IMs that are in place at the time.

Benefit of Crown financing

2.63 In specifying the forecast allowable revenues that Chorus may recover, we must ensure that they reflect, in respect of any Crown financing, the actual financing costs incurred by Chorus (or a related party) in the regulatory period.[68]

2.64 In order to ensure that forecast allowable revenues reflect, in respect of any Crown financing, the actual financing costs incurred by Chorus in the regulatory period, our draft decision is to include a (negative) building block equal to the benefit of Crown financing, as calculated in accordance with the IMs, as explained in paragraphs 3.24-3.26 of Chapter 3.

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[66] The specification of price and revenues IM is specified in Fibre Input Methodologies (initial value of financial loss asset) Amendment Determination 2020 [2020] NZCC 24 (3 November 2020), Subpart 1 of Part 3 of Attachment B.

[67] The capex IM is specified in Fibre Input Methodologies (initial value of financial loss asset) Amendment Determination 2020 [2020] NZCC 24 (3 November 2020), Subpart 7-8 of Part 3 of Attachment B.

[68] Section 171.

2.65 In the Fibre IM Reasons Paper, we stated in determining the quality IM, that we had considered a fibre market that has had the benefit of Crown subsidies. We have also accounted for this in setting quality standards, by using the UFB contractual levels of quality (which were arrived at in the context of UFB contracts including Crown subsidies) as the starting point for our quality levels.

Wash-up mechanism

2.66 Over the course of the first regulatory period, a wash-up mechanism will accrue balances for any over- or under-recovery of revenue by Chorus. When we determine the second PQ path, we will be required to apply a wash-up mechanism that provides for this accrued balance to be drawn down.[69]

2.67 We have proposed specifying the scope of this mechanism and how it will operate in the IMs. This is to provide greater certainty about future recovery of the wash-up by Chorus or by consumers.

2.68 We propose that the detailed calculations necessary to support the application of this mechanism be included in a s 221 notice that we will issue to Chorus. We intend to publish a draft of this notice for consultation in June 2021.

Smoothing revenues

2.69 When we determine our first PQ path, we must smooth revenues over multiple regulatory periods if we think it necessary or desirable to minimise any undue financial hardship to a regulated provider or to minimise price shocks to end-users.[70]

2.70 Whether this is necessary or desirable will depend in part on the level of forecast allowable revenue we determine for the first PQ path. Our draft decision in respect of smoothing under s197 is that it is not required, as we do not consider financial hardship or price shocks to end-users will occur. This is discussed in paragraphs 3.41-3.44 of Chapter 3.[71]

Quality standards

2.71 In specifying the quality standards that will apply to Chorus, we:

2.71.1 must apply the quality dimensions IMs;[72] and

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[69] Section 196(2).

[70] Section 197.

[71] However, as discussed further in Chapter 4, we have proposed smoothing building blocks revenue *within* PQP1.

[72] Under s 175(b)(ii) of the Act, we must apply the IMs in determining the quality standards applying to FFLAS. The quality dimensions IM is specified in Fibre Input Methodologies (initial value of financial loss asset) Amendment Determination 2020 [2020] NZCC 24 (3 November 2020), Subpart 6 of Part 3 of Attachment B.

2.71.2 may prescribe the standards in any way we consider appropriate (such as targets, bands, or formulas) as long as we apply the relevant IMs.[73]

2.72 Our draft decision is to specify quality standards for:

2.72.1 availability, as measured by average unplanned downtime, as discussed from paragraph 5.74 of Chapter 5; and

2.72.2 performance, as measured by port utilisation, as discussed from paragraph 5.121 of Chapter 5.

Matters that may be included in our PQ determination

2.73 A PQ path may include incentives for Chorus to maintain or improve its quality of supply, and those incentives may include (without limitation):

2.73.1 penalties which reduce Chorus' allowable revenues based on whether, or by what amount, it fails to meet the required quality standards;[74]

2.73.2 rewards which increase Chorus' allowable revenues based on whether, or by what amount, it meets or exceeds the required quality standards;[75]

2.73.3 compensation schemes that set minimum standards of performance and require Chorus to pay prescribed amounts of compensation if it fails to meet the required quality standards;[76] and

2.73.4 reporting requirements, including special reporting requirements in asset management plans, if Chorus fails to meet the required quality standards.[77]

2.74 Our draft decision is to not include revenue-linked penalties or rewards and not to include any compensation schemes, as explained in paragraphs 5.43-5.46 of Chapter 5.

2.75 We have proposed reporting requirements where Chorus fails to meet the required quality standards, as discussed in paragraphs 5.150-5.155 of Chapter 5.

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[73] Section 194(4).

[74] Section 194(3)(a).

[75] Section 194(3)(b).

[76] Section 194(3)(c).

[77] Section 194(3)(d).

Monitoring compliance with the PQ path, declared services regulations, and geographically consistent pricing

2.76 To monitor compliance with the PQ path, declared services regulations, and the geographically consistent pricing requirements, we may issue a written notice to Chorus requiring it to provide any (or all) of the following:

2.76.1 a written statement that states whether it has complied with the PQ path;[78]

2.76.2 a report on the written statement that is signed by an auditor in accordance with any form specified by us;[79]

2.76.3 sufficient information to enable us to properly determine whether a PQ path has been complied with;[80] and

2.76.4 a certificate, in the form specified by us and signed by at least one director, confirming the truth and accuracy of any compliance information provided.[81]

2.77 Our draft decision in respect of the revenue path is to require *ex ante* compliance disclosures whenever Chorus' varies the prices it charges for FFLAS, as explained in paragraphs A92 to A101 of Attachment A.

2.78 Our draft decision in respect of the quality standards is to require annual *ex post* compliance statement for both standards, as explained in paragraphs 5.150 to 5.155 of Chapter 5.

2.79 We have not yet made a draft decision about compliance requirements for declared services and geographically consistent pricing requirements. Unlike the PQ path itself, we may vary the compliance information requirements at any time by way of an updated notice. We are deferring these requirements until the final declared service regulations are in place.

Enforcement provisions applicable for PQ regulation

2.80 The High Court may on application by us, order a person to pay a pecuniary penalty to the Crown for contravening PQ requirements under s 215, which must not:[82]

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[78] Section 193(2)(a).

[79] Section 193(2)(b).

[80] Section 193(2)(c).

[81] Section 193(2)(d).

[82] Section 215.

2.80.1 in respect of each act or omission, exceed $500,000 in the case of an individual; or

2.80.2 $5,000,000 in the case of a body corporate.

2.81 If the High Court orders a person to pay a pecuniary penalty under s 215 in respect of the contravention of a PQ requirement, the court may, in addition, order the person to pay compensation to any person who has suffered, or is likely to suffer, loss or damage as a result of the contravention.[83] An application for this order may be made by us or any "aggrieved person".[84] In proceedings under s 216, the court may make such orders as to cost as it thinks fit.[85]

2.82 If the High Court is satisfied that FFLAS that are subject to PQ regulation are being provided, or are likely to be provided, in contravention of any PQ requirement applying with respect to those services, the court may (on application by any person) do one or both of the following:[86]

2.82.1 grant an injunction restraining any provider of those services from providing them in contravention of the PQ requirement;

2.82.2 make an order requiring the provider to provide the service in accordance with the PQ requirement applying to them.

2.83 A person commits an offence if:[87]

2.83.1 the person, knowing that particular FFLAS are subject to PQ regulation, intentionally contravenes a PQ requirement in respect of the services: or

2.83.2 the person is subject to an order referred to under paragraph 2.82 and fails to comply with the order.

2.84 Where a person commits an offence under s 217(1), they are liable on conviction to a fine not exceeding $200,000 in the case of an individual, or $1,000,000 in the case of a body corporate.[88]

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[83] Section 216(1).

[84] Section 216(2).

[85] Section 216(5).

[86] Section 218.

[87] Section 217(1).

[88] Section 217(2).

Economic framework

2.85 This section discusses the economic framework we have developed as part of our fibre IM decision-making process. We developed an economic framework to help guide the decisions we make in developing the new regulatory regime for Part 6. The framework helps us make individual decisions that are consistent with each other, and with the requirement to best give effect to the purposes described in s 166(2) of the Act. We consider that this framework is equally relevant to our decision-making process for PQ regulation and it has helped us to develop these draft decisions.

2.86 The economic framework includes three components:[89]

2.86.1 economic principles, including real financial capital maintenance, allocation of risk, and asymmetric consequences of under/over investment;

2.86.2 an incentive framework to help us evaluate how the regime may interact with the incentives faced by regulated providers and assist us in identifying risks to end-users; and

2.86.3 competition screening questions to help us assess whether our decisions might be relevant to competitive outcomes in telecommunications markets.

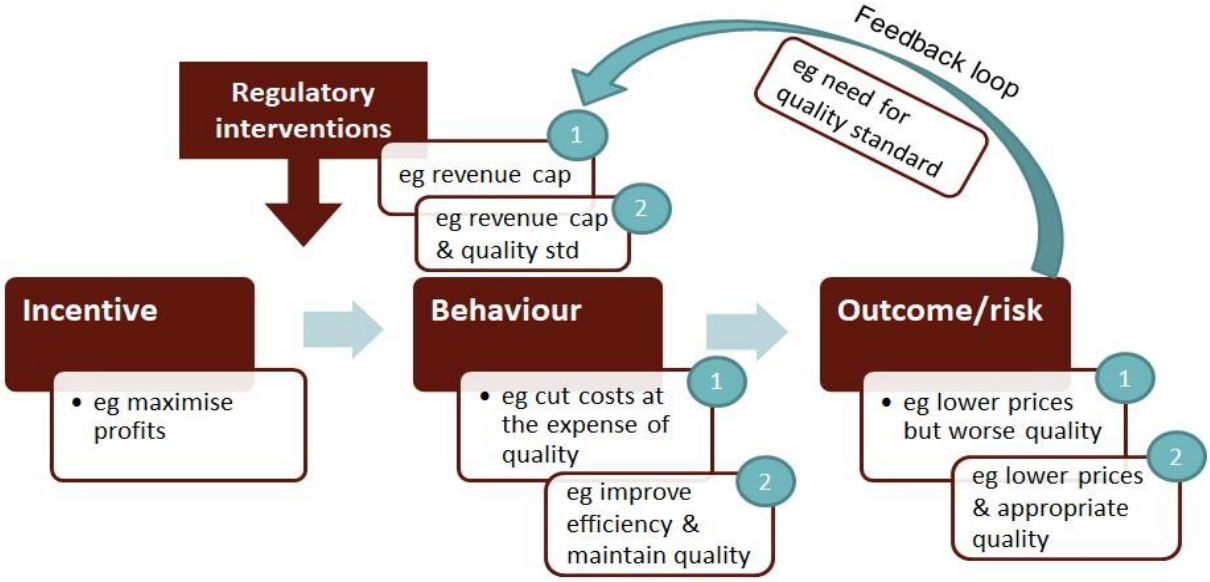
2.87 At its core, our incentive regulation aims to introduce incentives for regulated providers to behave in ways consistent with the purposes described in s 162 of the Act.

2.88 The PQ paths introduce incentives for regulated providers to improve their efficiency and supply FFLAS of a quality that reflects end-user demands (s 162(b)), including through innovation (s 162(a)). Our periodic resetting of the PQ paths ensures that end-users share in the benefits of any efficiency gains (s 162(c)), while limiting excessive profits (s 162(d)), similar to what would happen in a workably competitive market.

[89] Commerce Commission "Fibre input methodologies – Draft decision paper" (19 November 2019), paragraphs 2.155-2.205 and 2.253-2.265.

2.89 In line with the purposes in s 166(2), the regulatory rules introduced through our PQ determinations, underpinned by the fibre IMs and supported by the enforcement provisions specified in sections 215-218 of the Act,[90] aim to better align the incentives of regulated providers with the long-term interests of end-users. The incentive framework (partly illustrated in Figure 1.1 below) helps us ensure we have a more holistic view of how the regime may interact with the incentives faced by regulated providers or create consequential incentives for regulated providers. The incentive framework therefore assists us in identifying risks to end-users.

Figure 1.1 A regulated monopolist under a periodic revenue cap can increase profits by improving efficiency or degrading quality.



2.90 This incentive framework has helped us to determine draft PQ path decisions that we consider will best promote the long-term benefit of FFLAS end-users, as required by the Part 6 purpose described in s 162. We have also given consideration, where relevant, to the promotion of workable competition for the long-term benefit of all telecommunication end-users, as required by 166(2)(b).

2.91 Figure 1.2 illustrates an example of the interaction between:

2.91.1 the tools available to us under PQ regulation, subject to the fibre IMs; and

2.91.2 the main consequential incentives that might arise from the rules introduced for regulated providers subject to PQ regulation.

[90] See discussion at paragraphs 2.80-2.84 above.

2.92 Figure 1.2 is only an example of how we apply our incentive framework and does not capture all regulatory tools that we could apply under PQ regulation in PQP1 or in future periods, nor does it capture all consequential incentives that regulated providers might face. A non-exhaustive list of other potential regulatory tools, not illustrated at Figure 1.2, that could be introduced under PQ regulation is:

2.92.1 within-period or between-periods expenditure incentive schemes;

2.92.2 a set of options with different expenditure incentive strengths (or different returns on capital) within a regulatory period in exchange for different expenditure allowances;

2.92.3 quality incentive schemes; and/or

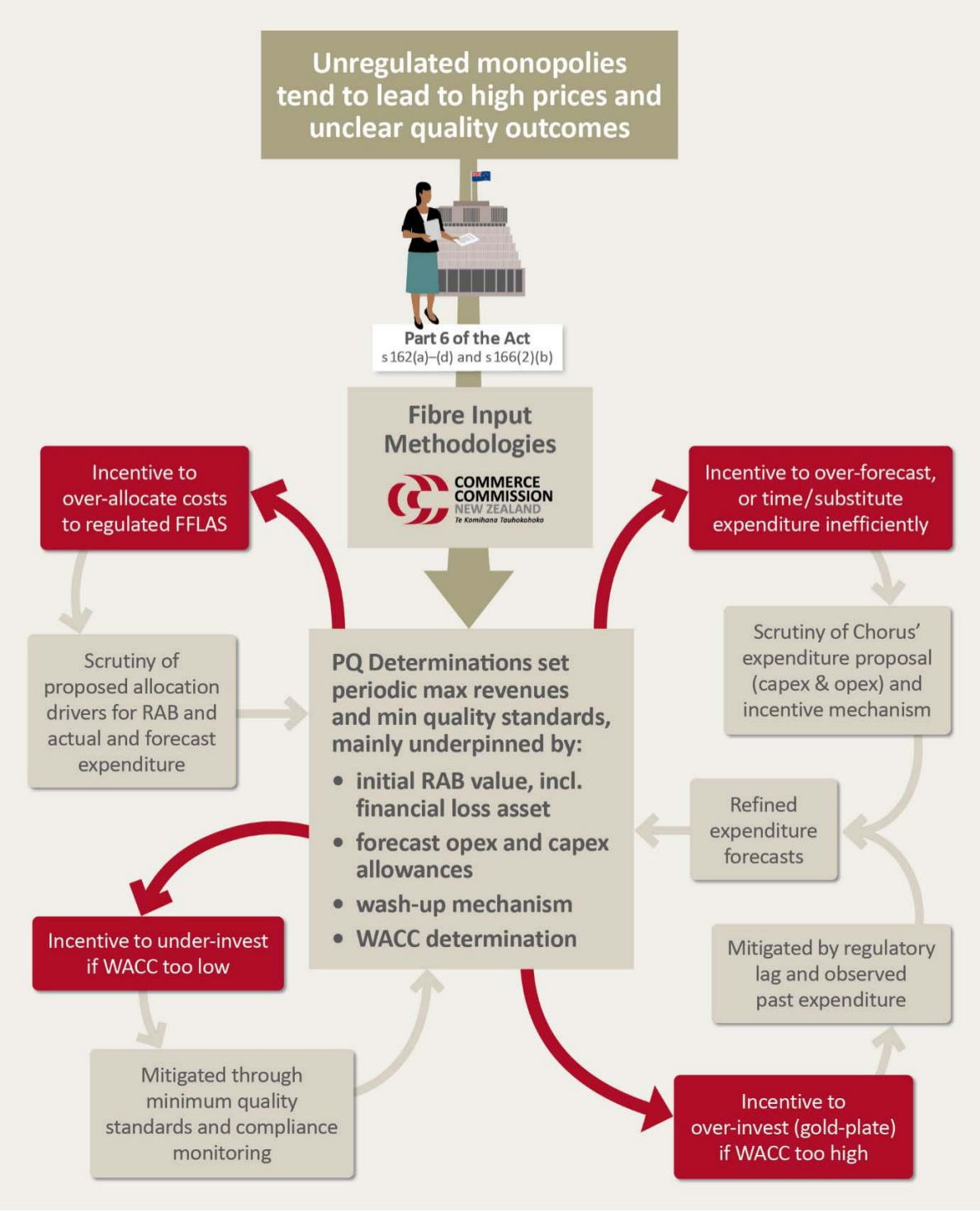
2.92.4 rules related to pricing efficiency.

2.93 For regulated FFLAS, the relationships depicted in the figure are also affected by ID and competition. The latter is explicitly recognised by the requirement in s 166(2)(b) of the Act for our decisions to consider the promotion of workable competition in telecommunications markets for the long-term benefit of end-users, where relevant. The following are examples of relevant considerations that affect the incentives of regulated providers:

2.93.1 The repeated nature of regulation allows us to observe through ID expenditure outturns over time, which lessens the incentive and therefore the risk of regulated providers gaming the expenditure forecasts;

2.93.2 Greater competitive pressure mitigates some of the incentives of regulated providers to behave in ways that are not in the long-term interest of end-users, which lessens the need for regulation. For example, the incentive to under-invest at the expense of quality is weakened, since the regulated provider would then risk losing end-users dissatisfied with the level of quality to competing firms supplying products based on alternative technologies.

Figure 1.2 **An example of how the PQ regime mitigates the main consequential incentives caused by regulation**



2.94 In response to our process and approach paper, Chorus submitted that the framework consulted on does not accurately reflect their incentives or market reality. Our framework is not intended to reflect on Chorus' current management or investors; rather, it reflects our understanding that a firm in Chorus' context (eg ownership and subject to price-quality regulation with periodic resets) will have the incentives described, among potentially many others. Whether or not it acts on those incentives is another matter, which will be revealed over time. However, we consider that it is the appropriate regulatory response to consider said incentives—and consequential risks to end-users—in determining the first PQ path.

Incentives properties of PQP1 and the application of the economic framework

2.95 The introduction of PQ regulation creates incentives that aim to better align the interests of regulated providers with those of end-users. The undesirable consequential incentives discussed in the Economic Framework section (and illustrated in Figure [2.2]) will exist in all regulatory periods, starting with PQP1.

2.96 However, PQP1 has some unique incentive features in that:

2.96.1 the information asymmetry between us and Chorus is likely to be higher in PQP1 than in subsequent periods. This is compounded by the incentive and potential ability for a profit maximising regulated provider to set and/or advocate for baselines for expenditure and quality that favour it, but not end-users;

2.96.2 PQP1 may be shorter than subsequent periods given that s 207(2) allows us to determine the duration of subsequent periods between 3 and 5 years; and

2.96.3 we are required to specify allowable revenues for each regulatory period that starts before the 'reset date'.[91] The earliest the reset date could occur is during the course of the second regulatory period.[92]

[91] Section 195(1).

[92] Under s 225 the reset date may only follow a Commission PQ review and recommendation under s 209 which must take place at least three years after the implementation date (1 January 2022). Since the first regulatory period starts on the implementation date and lasts for 3 years, a review under s 209 can only occur after the start of the second regulatory period. Accordingly, the earliest reset date would be during the second regulatory period and therefore a shift to maximum prices could not come into effect until at least the third regulatory period.

Information asymmetry

2.97 The information asymmetry between us and Chorus is likely to be higher in PQP1 than in subsequent regulatory periods. As a result, a profit maximising regulated provider might have a greater incentive in PQP1 (relative to subsequent periods) to engage in behaviours such as:

2.97.1 overstating its expenditure forecasts;

2.97.2 strategically timing its expenditure, (eg, in the base year);[93]

2.97.3 degrading quality prior to quality standards being set (as a low base for the standards) or degrading quality in not directly observable ways; and

2.97.4 pricing individual FFLAS in inefficient and/or potentially anti-competitive ways.

2.98 Among other things, these risks have guided our work on PQP1 so far, especially with regard to:

2.98.1 our setting of the initial PQ RAB (which is being progressed on a different timeline);

2.98.2 our draft PQP1 expenditure decisions[94]; and

2.98.3 our draft PQP1 quality standards.

[93] Base year is defined in the fibre IMs as "a disclosure year determined by the Commission". See *Fibre Input Methodologies Determination 2020 [2020]* NZCC 21, clause 1.1.4(2), definition of “base year”.

[94] A tool we may consider in future for addressing the incentive to overstate required expenditure is commonly known as ‘menu regulation’. Broadly, this tool is designed to encourage ‘information revelation’ with a minimum regulatory burden. In it, the regulator offers a menu of expenditure options with different cost sharing provisions (ie incentive strengths), or different returns on capital (the PREMO framework for regulating water in Victoria, Australia can be seen as a version of menu regulation). Such an approach would require an amendment to the Fibre IMs.

Length of the regulatory period

2.99 The length of PQP1 is determined by the Act at s 207(1) to be for three years from the implementation date. We can set the duration of subsequent periods to be between three and five years (s 207(2)). The shorter duration of PQP1, relative to subsequent regulatory periods that might be of five-year duration, has the following marginal effect on incentives:

2.99.1 A shorter regulatory period, such as PQP1, results in a weaker natural incentive strength to improve efficiency than a longer period. This is because the period over which Chorus can enjoy the benefits from retaining any efficiency gains is shorter (before they are passed on to end-users in PQP2). However, Chorus' ability to find efficiency improvements in PQP1 is also likely to be lower, especially for capex. This is because the network is new, and therefore the need to replace assets is small. Because of this, even though incentives to find efficiencies are weaker given the shorter regulatory period, the potential harm is also likely lower. The risk to efficiency will grow over time; we intend to monitor it and to consider ways to increase the incentive strength if the need arises in the future.

2.99.2 The longer the regulatory period, the greater the incentive to achieve cost reductions (efficiency savings and/or inefficient expenditure deferral) early in the period (and enjoy the higher profits for longer). While such a strategy could be beneficial to end-users, the flip side is that if Chorus identifies cost reductions later in a regulatory period, it might have an incentive to defer the implementation of these savings to the beginning of the next regulatory period. In PQP1, Chorus' scope to inefficiently time work delivered within this period is reduced (relative to a longer regulatory period). This is one of the reasons why we did not consider it necessary to adopt an incremental rolling incentive scheme in the fibre IMs at this stage.[95] The connection capex mechanism specified in the fibre IMs, which involves a variable component, can also mitigate the risk of expenditure being inefficiently delayed.

2.99.3 The shorter duration of PQP1, relative to a longer regulatory period, might imply weaker incentives for Chorus to argue for quality standards that would benefit it rather than end-users. This is because any consequences to end-users (that benefit Chorus instead) from setting inappropriate quality standards in PQP1 would be corrected sooner at the reset after three years (rather than later).

[95] Commerce Commission "Fibre input methodologies: Main final decisions – reasons paper" (13 October 2020), paragraph 9.178.

Potential implications of investments under the UFB contracts and price restrictions in the legislation

2.100 In addition to the length of the period, PQP1 also has other features that are likely to have an impact on the strength of incentives and/or ability for Chorus to behave in ways that might not be to the long-term benefit of end-users:

2.100.1 The scope for Chorus to substitute expenditure inefficiently between opex and capex is reduced in PQP1 because a significant proportion of investment is recently incurred or already committed through the Crown Infrastructure Partners (CIP) contracts.

2.100.2 There are legislative requirements for how Chorus has to price certain FFLAS in PQP1. These requirements may mean that Chorus' prices may not necessarily be efficient and that Chorus' price structure benefits some end-users, while disadvantaging others:

2.100.2.1 Chorus is under a requirement for geographically consistent pricing for FFLAS that are, in all material aspects, the same (s 201);

2.100.2.2 under the proposed regulations made under s 227, there is a requirement on Chorus to provide an anchor service, at a price no greater than the prescribed maximum price (s 198). In PQP1, the prescribed maximum price for the anchor service has to be based on the CIP contract price for that service, with an annual CPI adjustment (s 227(2)(d) and clause 14(4) of Schedule 1AA)); and

2.100.2.3 under the proposed regulations under s 228, there is a requirement on Chorus to provide DFAS, at a price no greater than the prescribed maximum price (s 199). In PQP1, the prescribed maximum price for DFAS has to be based on the CIP contract price for that service, with an annual CPI adjustment (s 228(6))).

2.101 As noted above, the legislative requirements imposed on Chorus' prices in PQP1 are likely to benefit some end-users while disadvantaging others (relative to efficient, cost-based prices). For example, the requirement for the anchor service maximum prescribed price in PQP1 to be based on the CIP contract price (at s 227(2)(d) and clause 14(4) of Schedule 1AA)) ensures that end-users whose retail product uses the anchor service are protected from price shocks in PQP1. However, to the extent that the CIP contract price does not reflect the costs of the anchor service, this might mean that the price structure Chorus has to adopt is inefficient; and that end-users purchasing retail products that use FFLAS other than the anchor service might be charged higher prices as a result.

2.102 We do not have the power to recommend a cost-based maximum prescribed price for the anchor service until PQP2 (see s 208(6)(b)). Likewise, we cannot undertake a review under s 209 and recommend cost-based maximum prices for DFAS and the unbundled fibre service until three years after the regime implementation date at the earliest.

2.103 We consider that these legislative restrictions on Chorus' prices limit, at least in PQP1, Chorus' ability to set prices in ways that could lead to long-term harm to competition or to detriment to end-users of telecommunications services. This is one of the reasons why in our final IM decisions we decided to not determine a pricing methodologies IM.[96] However, as noted at paragraph 2.101 above, we are aware of the risks to end-users that might arise from inefficient pricing structures, including potentially anti-competitive pricing, and we intend to monitor prices through ID disclosures and determine whether further intervention is required in the future.

Competition survey results

2.104 Earlier this year we sought feedback on the promotion of competition in telecommunication markets through ID and PQ regulation via a survey.[97] Below we summarise the responses to the survey we published in February; each submitter identified what they perceive to be the biggest risk(s) to competition and the best way to mitigate these risks using PQ regulation. Views from interested persons on our survey have helped us to reach our draft PQP1 expenditure decisions. Specifically, it informed our decision to exclude incentive payments from the draft connection capex and base capex allowances (discussed at paragraph 4.187)

[96] Commerce Commission "Fibre input methodologies: Main final decisions – reasons paper" (13 October 2020), paragraph 9.173-9.177.

[97] Commerce Commission "Promoting competition in telecommunications markets as part of fibre information disclosure (ID) and price-quality (PQ) regulation – survey questions" (4 February 2021).

2.104.1 Kordia identified the biggest risk to competition as being Chorus' bundling layer 2 products between PQ and ID-only areas that has exclusionary effects on LFCs in ID-only areas. Kordia submitted that the only solution to this is to set a certain acceptable minimum price through revenue/price regulation. This will ensure Chorus backhaul services (like their tail extension service (TES) and Chorus Backhaul Connect service) will not disadvantage other backhaul competitors by selling at an anti-competitively low price. PQ regulation would set Chorus' TES bundled backhaul pricing at a level that other firms could compete with.

2.104.2 Chorus submitted that the hypothetical risks identified by us in the survey were already addressed by other elements of the regulatory framework or prohibited under the Commerce Act and therefore unlikely to arise. Chorus submitted that PQ regulation was not designed to promote competition but rather to ensure natural monopolies act in consumers' interests. Chorus submitted that there are other tools used to promote competition, namely the Telecommunications Act, Deeds and Commerce Act which already establish an integrated competition and regulatory framework. Chorus suggested any competition concerns relating to telecommunications markets should first be addressed by the existing regulatory tools, rather than seeking to introduce extra requirements in PQ regulation.

2.104.3 Enable and Ultrafast identified a competition risk in the wholesale broadband access market arising from the fact that one technology (fixed fibre) is regulated as a structurally separated wholesale only service, while a competing service, fixed wireless access (FWA), is unregulated and delivered by vertically integrated providers who also consume more than 80% of the fixed fibre providers wholesale services. They submitted that increasing the regulatory burden on fibre providers while ignoring the competitive impact of FWA providers in the wholesale broadband market would simply tilt the playing field even more in their favour. They also submitted that we require Chorus to separately report for each of the LFC's UFB geographic areas, its UFB areas, and non-UFB areas so that any discriminatory pricing can be identified.

2.104.4 Spark did not rank its perceived risks. Spark identified a risk to competition from the fact that Chorus' interests extend beyond the purview of Part 6 of the Act. Spark were concerned that PQ decisions could enable Chorus to fund competitive activities from guaranteed BBM returns which would lead to a lessening of competition in related markets. Spark was also concerned about Chorus' pricing below cost and using incentive payments to entice customers from competing access providers. Spark submitted that the best way to mitigate these risks was to only allow retention capex where it best promotes competition. It submitted that recoverable capex should be defined so that it excludes capex initiatives with conditions or outcomes that do not best promote competition.

Chapter 3 Estimated forecast allowable revenue

Purpose and structure of this chapter

3.1 This chapter sets out our draft decisions on the maximum revenue Chorus would be allowed to recover during the PQP1 regulatory period. The chapter is structured as follows:

3.1.1 Estimated forecast allowable revenue for PQP1;

3.1.2 building blocks components; and

3.1.3 approach to the revenue path and wash-up mechanisms.

Estimates of allowable revenue for PQP1

3.2 This section discusses our estimates of forecast allowable revenue, our draft decisions on its component parts, and our draft decision on whether it is necessary to smooth revenue over multiple periods under s 197 of the Act.

3.3 Because we have yet to make draft decisions on the value of the initial PQ RAB and cost allocation, these values are estimates only. They illustrate the revenue implications of the draft decisions we have made, and assumptions for decisions we have not made yet. We intend to update these estimates following our draft decisions on the initial PQ RAB and cost allocation. All values are presented post-allocation.

3.4 We estimated a total forecast allowable revenue of $2,061.1m for Chorus over the three years of PQP1.[98] This allowable revenue amount is composed of: [99]

3.4.1 a 'building blocks revenue' amount of $2,020.4m;[100]

3.4.2 a forecast allowance for pass-through costs of $40.8m;[101] and

3.4.3 a wash-up amount of $0.[102]

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[98] In present value terms as at 1 January 2022. In nominal sum terms this equates to $2,219.3m

[99] *Fibre Input Methodologies Determination 2020* [2020] NZCC 21, clause 3.1.1(2).

[100] In present value terms as at 1 January 2022, including smoothing. In nominal sum terms this equates to $2,175.4m

[101] In present value terms as at 1 January 2022. In nominal sum terms this would equate to $43.9m. Consistent with the Fibre IMs and our proposed PQ determination, Chorus will be able to update these forecast values when demonstrating compliance with the revenue path.

[102] As discussed below, the wash-up amount provided for in clause 3.1.1.(2)(c) will be zero for each year of the PQP1 period, as Chorus does not yet have a wash-up balance to draw down.

3.5 These values are shown on an annual basis in Table 3.1 below and illustrated in Figure 3.1, along with a comparable estimate of Chorus' PQ FFLAS revenue for calendar year 2021.[103]

Table 3.1 Components of forecast allowable revenue ($m)[104]

Component	2022	2023	2024	PQP1 PV total
Building blocks revenue	675.2	729.6	770.7	2020.4
Pass-through costs	14.1	14.4	15.4	40.8
Wash-up amount	0.0	0.0	0.0	0.0
Total	**689.2**	**744.0**	**786.1**	**2061.1**

Figure 3.1 Estimated forecast allowable revenue for PQP1[105]

[103] Value taken from: Chorus "UPDATED: Indicative MAR range vs estimated regulated fibre revenues" (6 April 2021).

[104] All annual numbers are nominal values, calculated based on each years 'revenue date' (5 August, the date in the year where the present value is equivalent to 12 equal payments on the 20th of each month). The present value is as at 1 January 2022.

[105] Assuming current forecast of CPI inflation. As discussed in Attachment A, we have proposed a revenue path that moves with actual inflation.

Decisions on components of allowable revenue

Building blocks revenue

3.6 The largest component of forecast allowable revenue is 'building blocks revenue'. Building blocks revenue is an amount specified by the Commission in a PQ determination, and is composed of the relevant building blocks components.[106] Building blocks are components that reflect forecasts of Chorus' costs for the regulatory period, and certain regulatory adjustments (such as to smooth revenue over the PQP1 period).

3.7 The way we calculate building blocks revenue is illustrated in Figure 3.2 below. We have set out key draft decision input parameters and assumptions in Table 3.2.

3.8 The building-blocks components we have proposed to determine, and the specific contributions of each of them to forecast allowable revenue, are summarised in Table 3.3. The draft decisions we have made in relation to each building block are discussed in more detail in the second section of this chapter, from paragraphs 3.24 to 3.40.

Table 3.2 Key input parameters for the building blocks model

Parameter	Basis	Value
Total initial PQ RAB	Assumption (Chorus proposal)	$5.5b
Financial loss asset value	Assumption (Chorus proposal)	$1.5b
Vanilla WACC	Draft estimate	4.66%
Post-tax WACC	Draft estimate	4.46%
CPI (revaluations)	Draft estimate	2022: 1.46% 2023: 1.85% 2024: 2.06%
Allocated real base capex allowance	Draft decision	$535.2m
Allocated real base connection capex allowance	Draft decision	$284.0m
Allocated real base opex allowance	Draft decision	$435.6m

[106] *Fibre Input Methodologies Determination 2020* [2020] NZCC 21, clause 1.1.4(2) – definition of 'building blocks revenue'.

Table 3.3 Draft building blocks revenue components ($m, nominal)

Component	2022	2023	2024
Total return on capital	139.8	115.1	100.8
Return on assets (RAB x WACC)	260.0	257.3	253.9
Revaluations	-78.7	-99.2	-109.5
Ex-ante stranding allowance	5.5	5.4	5.4
Benefit of Crown finance	-48.9	-50.4	-50.8
TCSD allowance	1.9	1.9	1.9
Opex allowance	154.1	150.1	146.0
Total depreciation	466.4	448.8	447.0
Core fibre assets	263.1	271.4	291.4
Financial loss asset	203.3	177.4	155.6
Tax allowance	0.0	0.0	0.0
In-period smoothing	-85.1	15.6	76.9
Total	**675.2**	**729.6**	**770.7**

Pass-through costs

3.9 The specification of price and revenue IMs also require an allowance for the recovery of 'pass-through costs' to be included in forecast allowable revenue. Pass-through costs are costs over which Chorus has little or no control, and that are appropriate to be passed through to end-users.

3.10 The IMs specify that pass-through costs are:[107]

3.10.1 telecommunications levies under ss 11 and 12 of the Act;

3.10.2 telecommunications development levies;

3.10.3 local authority rates; and

[107] *Fibre Input Methodologies Determination 2020* [2020] NZCC 21, clause 3.1.2.

3.10.4 a fixed membership fee relating to, or a fixed amount payable as a member of:

3.10.4.1 the Utilities Disputes Limited's (UDL) dispute resolution scheme;

3.10.4.2 the Telecommunications Dispute Resolution Scheme (TDRS); and

3.10.4.3 any other dispute resolution scheme specified in a PQ determination.

3.11 We have not proposed specifying any additional dispute resolution scheme costs as pass-through costs for PQP1. This is because we are not aware that Chorus participates in any additional relevant schemes for which a pass-through cost would be required.

3.12 As discussed further in Attachment A, we propose that Chorus will be able to update the forecast values for pass-through costs when demonstrating compliance with the revenue path.

Wash-up amount

3.13 The IMs also require the inclusion of a 'wash-up amount' as part of allowable revenue.[108] One purpose of this amount is to allow accumulated wash-up balances to be added to or subtracted from allowable revenues. As this is the first period of the PQ regime, and we have proposed wash-up draw downs on a period-to-period basis, the wash-up amount in each year of PQP1 will be zero.

3.14 When determining the IMs, we also considered that the wash-up amount could be used for smoothing of revenues within and between periods.[109] We have proposed implementing in-period smoothing by way of a separate building block (another option contemplated when we determined the IMs). As discussed below, we do not consider inter-period smoothing necessary under s 197.

3.15 Our high-level approach to the wash-up mechanism is discussed in paragraphs 3.69 to 3.84 in this chapter. The details of the mechanism are covered in Attachment A.

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[108] To clarify how the wash-up process will work and carry over-between regulatory periods, we have also proposed amendments to the fibre IMs.

[109] Commerce Commission "Fibre input methodologies: Main final decisions – reasons paper" (13 October 2020), para 9.28.

Factors that may change between our draft and final decisions

3.16 The estimated forecast allowable revenue included here is an indicative estimate based on:

3.16.1 our draft PQ policy decisions;

3.16.2 Chorus' proposed initial PQ RAB and cost allocation;[110] and

3.16.3 the most recently available other input data.

3.17 All of these are subject to change prior to our final decision. Specifically:

3.17.1 based on submissions on this paper, we may change our decisions on Chorus' opex, base capex, or connection capex baseline allowances;

3.17.2 estimates based on Chorus' RAB proposal may change based on our August draft decision on Chorus' initial PQ RAB and financial loss asset; and

3.17.3 based on our August draft decision on cost allocation for forecast expenditure, and the submissions we receive in response, the cost allocators we apply for the final PQ decision may change;

3.17.4 we will determine the final WACC for PQP1 in June, based on the most recently available data, this will also involve updating the CPI forecasts used to determine revaluations.

Building blocks components

3.18 This section summarises the draft decisions we have made on each of the major building block components that make up 'forecast building blocks revenue'.

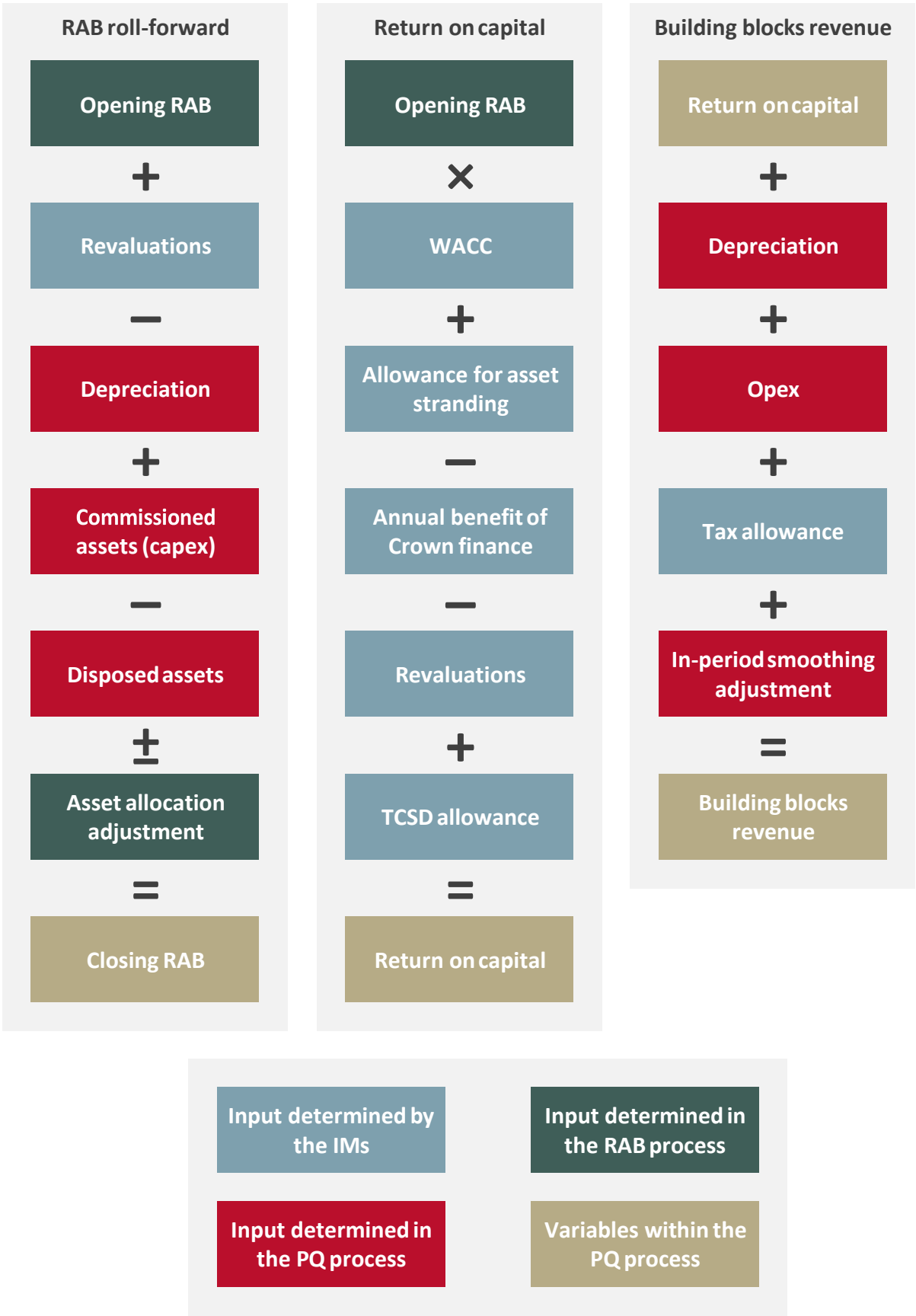
3.19 It starts by giving a brief summary of the building blocks methodology. It then discusses the values we have used for each component and finishes by discussing specific building blocks where we have had to exercise our judgement about the values that we consider meet the criteria in s 166(2) of the Act. Finally, it describes how we have implemented this model in practice.

Building blocks methodology

3.20 Building blocks are the forecast efficient costs and other components that are added together to form a regulated provider's allowable revenue. A stylised version of the building blocks methodology is shown in Figure 3.2.

[110] As noted in the introduction to this paper, we are consulting on the initial PQ RAB and cost allocation on a separate timeline.

Figure 3.2 Stylised key building blocks equations



3.21 The inputs to building blocks revenue highlighted in red are those where we must exercise our judgement as part of the PQ setting process. In determining these values for our draft decisions, we have made decisions that we consider best give effect to the purpose in s 162, consistent with s 166(2)(a), and (where relevant) the promotion of workable competition, consistent with s 166(2)(b).

3.22 The inputs highlighted in green (the opening PQ RAB) also requires judgement similar to that discussed above. However, we are following a separate process to determine Chorus' initial PQ RAB. Our current process sets out that we will publish separate draft decisions on the initial PQ RAB in August 2021, that will be the transitional initial PQ RAB input value for our final PQP1 decisions in November 2021.

3.23 The inputs highlighted in blue are largely determined by the IMs, and only require us to apply the relevant input methodologies.

Draft decisions on building blocks determined by the IMs

3.24 As illustrated above, the following building block components are largely determined by the Fibre IMs:

3.24.1 the components of the return on capital;

3.24.2 the revaluations building block that results from the indexation of the RAB; and

3.24.3 the regulatory tax allowance.

3.25 Within the return on capital, we have chosen to specify a negative "annual benefit of Crown finance building block". While the decision to include this is a matter of implementation judgement, how it is calculated is determined by the IMs.

3.26 Note that for the regulatory tax allowance in each year of PQP1 is $0m. This is because Chorus has faced tax losses during the pre-implementation period that have not yet been fully recovered.

Draft decisions on key building blocks where we have exercised our judgement

3.27 This section discusses the draft decisions we have made regarding:

3.27.1 disposed assets;

3.27.2 depreciation; and

3.27.3 revenue smoothing within the PQP1 period.

3.28 We also need to exercise judgement when assessing capex and opex allowances. These decisions are discussed in detail in Chapter 4, and in the accompanying attachments to this paper.

3.29 As noted in Chapter 4, this does not include draft decisions about cost allocation for expenditure allowances. For this draft decision, we have applied the cost allocators and allocations as proposed by Chorus. Our current process outlines that we will make a draft decision on cost allocation in our August draft initial PQ RAB draft decision.

Assumption we have used for the initial PQ RAB

3.30 We must also (when setting the PQ path for the first time) apply judgement in assessing Chorus' proposed value for its initial PQ RAB. As we noted in the introduction to this paper, we are considering our decision on the initial PQ RAB separately, with a planned draft decision in August 2021.

3.31 For this reason, we have used Chorus' proposed initial RAB value of $5.5b (including a financial loss asset value of $1.5b) for illustrative purposes in this draft decision.

Disposed assets

3.32 Forecast values of disposed assets are removed from the PQ RAB during the 'roll-forward' illustrated above. Chorus has not forecast any asset disposals during PQP1, so our draft decisions is not to include any.

Draft decisions on depreciation

3.33 Under the fibre IMs, we have discretion about what depreciation method to apply. The IMs provide for a default approach, but allow us to apply an alternative where we consider it would:

3.33.1 better promote the purpose of Part 6;

3.33.2 where relevant, better promote workable competition in telecommunications markets; and

3.33.3 where relevant, be consistent with the Commission's smoothing of prices or revenue under s 197 of the Act.[111]

3.34 For core fibre assets, our draft decision is to apply the default provisions in the IMs.[112]

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[111] *Fibre Input Methodologies Determination 2020* [2020] NZCC 21, clause 3.3.2(5).

[112] *Fibre Input Methodologies Determination 2020* [2020] NZCC 21, clause 3.3.2(2) and (3).

3.35 For the financial loss asset, our draft decision is to apply an alternative method involving:

3.35.1 an asset life of 14 years; and

3.35.2 diminishing value depreciation with a slope of 14.3%, being 2 divided by the asset life.

3.36 Our reasons for this approach are set out in detail in Attachment B.

Revenue smoothing within the period

3.37 We have proposed smoothing Chorus' revenue over the PQP1 period based on allowing (though not requiring) Chorus to maintain prices at current real levels.

3.38 This involves determining building blocks revenue such that it increases by:

3.38.1 forecasts of weighted average demand growth as proposed by Chorus; and

3.38.2 the latest RBNZ CPI forecasts.

3.39 The effective rates of change this smoothing implies are set out in Table 3.4.

Table 3.4 Forecast rates of change for in-period smoothing

Value	2023	2024
Forecast CPI	1.9%	2.1%
Demand growth	6.1%	3.5%
Total[113]	**8.1%**	**5.6%**

3.40 To give effect to this change, we have included an additional 'in-period smoothing' building block. This has the effect of reducing building blocks revenue in the first year of the regulatory period by $85.1m, and in years two and three, increasing building blocks revenue by $15.6m and $76.9m respectively.

Revenue smoothing between periods under s 197

3.41 As noted in Chapter 2, we have an obligation so to smooth revenues over two or more periods in a present-value neutral way where we consider it is necessary to minimise:

3.41.1 price-shocks to end-users; or

3.41.2 undue financial hardship to a regulated FFLAS provider.

[113] Note: the total value is not a sum of the two rates of change, but a multiplicative approach (1+CPI)x(1+Q).

3.42 At this stage, we do not consider either of these risks are likely to eventuate, and so we do not consider that revenue smoothing between periods is required under s 197.

3.43 With regard to price-shocks, we do not consider the increase in forecast allowable revenue (relative to current revenues) large enough to lead to a price shock. As allowable revenue is set to increase in line with demand, in aggregate prices (on a revenue per connection basis) will likely be flat.

3.44 With regard to financial hardship, while Chorus have presented evidence (in support of their alternate depreciation proposal) that they risk some difficulties in attracting investment if the default depreciation methodology was applied, we do not consider this rises to the level of financial hardship contemplated by the Act.

Implementing the building blocks model

3.45 To implement the calculations set out in Figure 3.2 above, we have used a building-blocks model developed for Chorus by consultants Analysys Mason. This model uses the outputs of Chorus' initial RAB model as an input and applies the same approach to cost allocation (on a forecast basis) as used in the initial RAB model.

3.46 As this model contains confidential information, Chorus have provided a version of the model with randomised values, so stakeholders can see how the model works. Chorus have undertaken an internal and external review process for this model, the details of which we have published on our website.

3.47 The model uses our draft decisions on commissioned assets, operating expenditure, depreciation, and in-period revenue smoothing as inputs to calculate the estimated forecast building blocks revenue values we cite in this paper.

3.48 The Commission has also developed a 'demonstration' model, which applies the same building blocks methodology (except for the application of cost allocation and depreciation, the outputs of which are taken from the Chorus model). We have used this model as a cross-check on the results from the Chorus model, to test for it for accuracy. This model (which contains actual values, rather than randomised ones) has also been published on our website.

Approach to the revenue path and wash-up

3.49 This section sets out our high-level draft decisions on the revenue cap and wash-up mechanisms that will apply during PQP1. It is supported by Attachment A, which covers the details of how we propose the mechanisms would work in practice.

Summary of our proposed approach to the revenue cap

3.50 The purpose of the revenue cap is – simply put – to limit Chorus' revenue. Doing this is a central part of meeting the s 192 purpose of price-quality regulation. On top of this, we must determine the revenue path in a way that is compliant with the Act and the IMs, and that best promotes the purpose of Part 6 and workable competition where relevant.

3.51 This section covers:

3.51.1 the fundamental design decisions about how we propose the revenue cap will operate;

3.51.2 draft decisions on the additional controls on revenue that we indicated we could consider;[114] and

3.51.3 the fundamental design decisions about how we propose the wash-up mechanism will operate.

3.52 As noted above, draft revenue cap and wash-up design decisions are discussed in detail in Attachment A.

Basis for the revenue cap

3.53 As required by the fibre IMs, and consistent with the draft IM amendments we propose, the revenue cap will require:

3.53.1 'forecast total FFLAS revenue' is less than or equal to

3.53.2 'forecast allowable revenue'.[115]

3.54 Chorus would have to demonstrate compliance with this on a forecast (or *ex ante)* basis and would do so at the start of each regulatory year, with an update any time it changes its prices mid-year.

[114] Commerce Commission "Fibre Information disclosure and price-quality regulation – proposed process and approach for the first regulatory period" (15 September 2020), chapter 5.

[115] Note that we have proposed amending the fibre IMs to clarify that this assessment is done on a forecast basis.

Total FFLAS revenue

3.55 Forecast total FFLAS revenue is defined by the IMs, so we do not need to exercise judgement about this issue as part of the PQ path. However, we have proposed requiring Chorus to demonstrate how it calculates 'total FFLAS' on the basis of prices and forecast quantities. This is to enable transparent assessment of whether the forecasts used are 'demonstrably reasonable' and to allow for future calculation of the wash-up.

Forecast allowable revenue

3.56 Forecast Allowable revenue is defined by the IMs. However, there is scope for judgement in how this is applied in the PQ path. The specification of 'building blocks revenue' is a discretionary matter at each PQ path setting.

3.57 We have specified forecast building blocks revenue as a specific dollar value for regulatory year 2022. For regulatory years 2023 and 2024, we have specified building blocks revenue by way of a formula that references:

3.57.1 forecast building blocks revenue in the prior regulatory year;

3.57.2 actual CPI; and

3.57.3 forecast (as at the start of the regulatory period) changes in quantities.

3.58 We have proposed allowing Chorus to update the values of any forecast pass-through costs on an annual basis. This is to ensure that these are passed through to prices as intended, rather than building up a wash-up balance to be drawn down in future.

Additional controls on revenue

3.59 In our process and approach paper, we considered whether any additional controls on Chorus' revenue were justified in addition to the ordinary revenue path. These measures included:

3.59.1 a limit on Chorus' ability to accrue a wash-up balance by choosing to under-recover its revenue voluntarily;

3.59.2 a catastrophic demand risk cap (to share risk between Chorus and end-users in the event of a sudden loss of demand); or

3.59.3 a limit on the rate of increase for Chorus' 'total FFLAS revenue', notwithstanding compliance with the revenue path.

3.60 We have not proposed introducing any such measures.

3.61 Promotion of the purpose of Part 6 and workable competition are relevant to this decision, as we would only propose these kinds of measures where the conventional revenue cap does not adequately mitigate (or creates) risks to incentives or competition.

3.62 Our starting point when considering these measures is that we should not include them unless there is a compelling s 166(2) reason for doing so. This is because these additional measures add complexity, increasing compliance costs and the possibility of over-determined prices.

Limit on undercharging

3.63 This measure was introduced in Part 4 for EDBs, where we were concerned that trust-owned EDBs would build up substantial wash-up balances as they pass-on lower prices to their consumer/owners. We do not consider this a risk with an investor-owned provider.

3.64 However, there is a risk of Chorus artificially lowering prices in the short term on certain products in an effort to limit competition from FWA providers. Chorus has the ability to temporarily under-recover with a future wash-up, giving it an advantage over FWA providers.

3.65 In submissions on the process and approach paper, Spark and Vocus supported this control, citing the competition risks discussed above.[116]

3.66 Given Chorus' indicated approach to pricing (broadly speaking, maintaining stable prices in real terms) and the investment needs it faces, we do not consider this risk likely in PQP1. However, we would reconsider this decision in future periods if we considered this risk was more likely to eventuate, and therefore, require this control in order to best give (or be likely to best give), effect the s 166(2)(b) purpose.

Catastrophic demand risk

3.67 From a risk-allocation principle perspective, there is an argument that some risk of dramatic declines in demand should be shared with Chorus. However, the inclusion of a catastrophic event reopener allows us to manage this risk.[117]

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[116] Spark "Submissions on PQID process and approach paper" (14 October 2020); Vocus "Submissions on PQID process and approach paper" (14 October 2020).

[117] *Fibre Input Methodologies Determination 2020* [2020] NZCC 21, clause 3.9.3.

Limit on the increase in forecast revenue from prices

3.68 The purpose of this kind of mechanism is to limit sudden increases in revenue due to multiple intersecting factors (such as incentives, wash-ups, or pass-through costs). As PQP1 for Chorus lacks such features, this risk does not exist, so this measure is unnecessary.

Summary of our proposed approach to the wash-up mechanism

3.69 This section discusses our proposed approach to the wash-up mechanism. It covers:

3.69.1 the mechanics of how the wash-up would be calculated; and

3.69.2 our draft decisions about the scope of the wash-up.

Mechanics of the wash-up

3.70 We have proposed, as part of our IM amendments draft decision, to specify the mechanics of the wash-up in the IMs. These amendments would incorporate certain details of the wash-up (principally the 'wash-up accrual' approach) in the IMs, to give greater certainty to end-users and Chorus about how the balances would be carried forward into future periods.[118]

3.71 The wash-up mechanism we propose would wash-up for the difference between what Chorus was entitled to recover over the period (the 'actual revenue allowance') and what it actually earned from its customers (actual 'total FFLAS revenue'). We call the result of this the 'wash-up accrual'.

3.72 The actual revenue allowance will be calculated by re-running the 'forecast allowable revenue' model discussed above, but with updates to the parameters that are subject to wash-up.

3.73 Actual 'total FFLAS revenue' will be calculated the same way as forecast 'total FFLAS revenue' but using actual quantities instead of demonstrably reasonable forecasts of them.

3.74 The wash-up accruals will accrue to a wash-up balance over the period. This balance will also be rolled-forward each year using the post-tax WACC as the time-value of money to preserve NPV neutrality.

[118] [DRAFT] Fibre Input Methodologies Amendment Determination 2021 (27 May 2021), clauses 3.1.1(4)-(10).

3.75 The wash-up balance will be calculated at the end of the PQP1 period. To allow wash-up draw-down amounts for PQP2 to be factored into the PQP2 revenue setting decision, the calculation of the proposed 'closing wash-up balance adjustment' will need to use updated forecasts for the final year of PQP1 (year-ending 2024) rather than actual values.

3.76 As this calculation is not part of the revenue path for PQP1. As such, we have not included these requirements in the PQP1 determination. Rather, we propose the details of the wash-up account calculations will be specified in a s 221 notice.

3.77 We will consult on how we have proposed drafting those requirements in a separate document that will be published by June 2021.

Scope of the wash-up mechanism

3.78 We are required by statute to include a wash-up for any under- or over- recovery of revenue.[119] At a minimum, this encompasses differences in recovery due to differences in forecast versus actual levels of demand.

3.79 We will include an explicit wash-up where:

3.79.1 Chorus not bearing the risk that outcomes differ from forecasts best promotes the purpose of Part 6 or workable competition (often in terms of the economic principles and incentive framework); and

3.79.2 there is no existing mechanism that provides for that.

3.80 As our proposed wash-up mechanism works across regulatory periods (that is accrued in one regulatory period and drawn down in another), we have proposed that to enhance regulatory certainty, its components be specified in the IMs.

3.81 The existing IMs already require us to include wash-ups for:[120]

3.81.1 the connection capex variable adjustment; and

3.81.2 any individual capex projects for a regulatory period approved after the determination of the PQ path.

3.82 We are also proposing, as part of an IM amendment, to require a wash-up for the revenue impacts of differences between the revenue impact of the estimated value of the initial PQ RAB we will use as part of our final PQ decisions, and the final value of the initial PQ RAB that will be calculated in 2022.

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[119] Telecommunication Act 2001, s 196.

[120] *Fibre Input Methodologies Determination 2020* [2020] NZCC 21, 3.7.1(4)(b).

3.83 Finally, we propose including the following wash-ups:

3.83.1 forecast and actual pass-through cost; and

3.83.2 forecast and actual Crown financing repayments.

3.84 The details of why we have included these items are included in Attachment A.

Chapter 4 Expenditure

Purpose and structure of this paper

4.1 The purpose of this section is to set out our draft decisions on base capex, baseline connection capex and opex allowances. The chapter is structured as follows:

4.1.1 summary of our draft decisions on expenditure;

4.1.2 requirements of the Act and IMs;

4.1.3 process we have undertaken;

4.1.4 assessment of general areas in Chorus' proposal and expenditure forecasts;

4.1.5 base capex;

4.1.6 baseline connection capex; and

4.1.7 opex;

4.2 All expenditure references in this chapter are in real June 2020 dollars, with cost allocation applied, unless stated otherwise.

Summary of our draft decisions on expenditure

4.3 Consistent with the capex IM,[121] we have proposed expenditure allowances for the:

4.3.1 base capex allowance; and

4.3.2 connection capex baseline allowance.

4.4 To support the development of the forecast building blocks revenue, under PQ regulation we must also determine an opex allowance for the upcoming regulatory period.

4.5 We found that Chorus' expenditure proposal contained the primary components required. However, in many areas the proposal and supporting documentation lacked the level of detailed information required to assess the rationale for the proposed expenditure. Regulatory processes of this nature are to be expected to face such issues the first time they are applied, but we expect that they will improve over time.

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[121] *Fibre Input Methodologies Determination 2020* [2020] NZCC 21, clause 3.7.1(1).

4.6 Accordingly, for the first regulatory period, there are some instances where we have had to apply judgement based on historical trends and other relevant factors to establish the allowances included in this draft decision.

4.7 Table 4.1 provides a summary of all of our draft decisions relating to Chorus' proposed expenditure for PQP1. The expenditure amounts quoted in Table 4.1 are all in real 2019/2020 dollars.

Table 4.1 Key features of our draft decisions on Chorus expenditure

Topic	Draft decisions

Base capex allowance	• Our draft decision includes a total base capex allowance of $535.2m for PQP1
	• This includes a total reduction of Chorus' proposed expenditure by $106.79m (16.6%) which includes expenditure we consider more appropriately submitted as individual capex. This consists of the following:
	  ○ We have removed base capex innovation expenditure of $36m, and retention incentives of $34.7m[122] and propose Chorus resubmit as individual capex.
	  ○ Our total base capex allowance decision includes a total base capex adjustment of $28.2m[123] to account for over-forecasts in Chorus' base capex proposal.
	  ○ We have reduced Aggregation and Transport expenditure by a total of $5.1m to account for updated demand forecast and adjusted Field sustain expenditure by $1.9m, to reflect Chorus' fibre assists sustain plan for PQP1.
	  ○ We have reduced Network and Customer IT by $1m to remove additions made by Chorus as a variance to the 5-year business plan.
	• Our draft decision also includes expenditure allowances for each base capex sub-category proposed by Chorus.
	• Our decisions relating to specific base capex sub-categories are outlined from paragraph 4.146 onwards.

Baseline connection capex allowance	• Our draft decision for total connection capex baseline allowance is $284m for PQP1 • Connection capex will be split into 11 connection types, rather than the 10 connection types proposed by Chorus • We have reduced Chorus' baseline connection capex by $51.4m (15.3%). This consist of the following reductions: ○ We have removed incentive payments of $9.2m (adjusted for changes to the demand forecast) from

[122] Subject to the thresholds being met for an individual capex proposal related to retention incentives, as set out in Attachment G.

[123] This amount is a Commission calculation based on assessment of available information.

Topic	Draft decisions
	the connection capex baseline allowance as we do not consider that they meet the definition of variable connection costs and consider this type of capex is more appropriately submitted as individual capex;[124] ○ A reduction of the forecast connection capex of $20.4m to reflect smoothed unit cost trends; and ○ A reduction in the forecast volumes based on the updated demand forecast, resulting in a $21.8m reduction in the allowance (after the application of the smoothed unit costs).
Opex allowance	• Our draft decision for total opex allowance is $435.6m for PQP1 • Our draft decision also includes expenditure allowances for each opex sub-category proposed by Chorus. Our decisions relating to specific opex sub-categories are outlined from paragraph 4.204 onwards. • We have reduced Chorus' opex by $52.2m (10.7%). This consists of the following: ○ Our total opex allowance decision includes a total opex adjustment of $21.3m, to account for the benefits from planned IT investment ○ We have removed $21.8m from Corporate Support expenditure, reflecting the historic cost trends and removing estimated inefficiencies in the base year costs and reductions for two regulatory overlays. ○ We have removed $9m from Network maintenance for the change in demand forecast and deduction of the insufficiently justified "pits and manholes" variance to the 5-year business plan.
Approach to cost allocation	• We have not made any decisions relating to cost or asset allocation within this paper. • We intend to consult on cost and asset allocation as it impacts Chorus' expenditure allowances in August as part of our draft decisions on Chorus' initial PQ RAB and associated cost and asset allocation. • This means our draft expenditure allowance decisions could change as a result of the cost allocator review.
Approach to cost escalation	• Our draft decision is to use an alternative to Chorus' cost escalation proposal. • We will escalate approximately half of expenditure with the non-CPI escalators that Chorus proposed, and the remaining

[124] Subject to the thresholds being met for an individual capex proposal related to retention incentives, as set out in Attachment G.

Topic	Draft decisions
	expenditure with a combination of 'Just CPI' and the weighted average approach to escalation applied in Part 4 for EDBs. • Our draft decision is to update all escalator forecasts for the final expenditure allowance decision later this year. • For detail on our decisions relating to cost escalation, refer to paragraph 4.106 onwards.
Additional reporting requirements	• Our draft decision is to require Chorus to provide: ○ An asset management development roadmap by 30 June 2022; ○ A cost estimation / asset data improvement roadmap by 30 June 2022; ○ An annual report on the progress against the asset management development roadmap and the cost estimation/data improvement roadmap; ○ An updated engagement plan by 30 June 2022.

4.8 Chorus forecasts that it will spend $642.1m in base capex, $335.4m in connection capex, and $487.8m in opex over PQP1.

4.9 Our draft decision is to reduce Chorus' expenditure by $106. 9m (16.6%) for the base capex allowance, $51.4m (15.3%) for the connection capex baseline allowance, and $52.2m (10.7%) for the opex allowance. We consider that $81.1m of Chorus' proposed base capex would be more appropriately applied for via individual capex proposals, subject to the thresholds being met for a proposal related to retention incentives as set out in Attachment G. Additionally, should Chorus' actual connections volumes exceed forecast an adjustment will be made using the connection capex variable adjustment mechanism of the wash-up, as we have outlined at para 4.105.

Table 4.2 Summary of our expenditure allowance draft decisions (in real $)

	Base Capex ($m)	Baseline Connection Capex ($m)	Opex ($m)	Totex
Chorus proposal	642.1	335.4	487.8	1465.3
Proposed draft decision	535.2	284.0	435.6	1254.9
Difference	(106.8)	(51.4)	(52.2)	(210.4)
Potential Chorus Individual Capex proposals				81.1
Adjusted difference				139.7

Table 4.3 Summary of our expenditure allowance draft decisions by regulatory year in PQP1

Allowance	Proposed Allowance Amount			
	2022	2023	2024	Total
Base Capex	192.4	177.9	164.9	535.2
Connection Capex	131.7	88.7	63.6	284.0
Opex	150.6	145.2	139.8	435.6
Total	**474.8**	**411.8**	**368.3**	**1254.9**

4.10 The table below summarises our draft decision in nominal terms.[125] We have applied alternative escalators to those proposed by Chorus. Further details on our approach to escalation is discussed later in this chapter.

Table 4.4 Summary of our expenditure allowance draft decisions (in nominal commissioned $)

	Base Capex ($m)	Baseline Connection Capex ($m)	Opex ($m)	Totex
Chorus proposal (nominal)	673.8	349.2	509.9	1532.9
Proposed draft decision, with alternative escalation	555.6	295.3	453.8	1304.6
Difference	(118.2)	(53.9)	(56.1)	(228.3)

Requirements of the Act and IMs

4.11 This section sets out the legal requirements and regulatory framework which underpin our draft decisions on expenditure in relation to PQ regulation. It explains how our draft decisions give effect to the s 166(2) purposes and the requirements in the capex IM.

4.12 We consider our draft expenditure decisions promote workable competition in telecommunications markets for the long-term benefit of end-users.

[125] We note that our draft expenditure allowances are net of capital contributions.

IM requirements

4.13 The capex IM requires us to determine a capex allowance, after Chorus has submitted a capex proposal that relates to each of the capital expenditure categories set out in the IM.[126] For the upcoming first regulatory period, we must make at least the following determinations on specific allowances:

4.13.1 A base capex allowance for each regulatory year of the regulatory period; and

4.13.2 A connection capex baseline allowance, for each regulatory year of the regulatory period.

4.14 As at the date of publication of this paper, Chorus has not submitted any individual capex proposals. However, we note that some of our draft decisions are to exclude expenditure from the capex allowances, leaving open the possibility for Chorus to apply for the expenditure under an individual capex proposal.[127] Chorus may apply to the Commission to determine an additional capex allowance before (or during) the regulatory period.128 Information requirements for that process may be met by Chorus referencing documents already provided to the Commission.[129]

4.15 The capex IM requires us to include the following in the connection capex baseline allowance determination:[130]

4.15.1 the connection capex baseline allowance by connection type for each regulatory year of the regulatory period;

4.15.2 the connection capex unit costs and any non-linear connection cost functions used to calculate the connection capex baseline allowance for each regulatory year of the regulatory period; and

4.15.3 the forecast volumes, by connection type, used to calculate the connection capex baseline allowance for each regulatory year of the regulatory period.

4.16 In addition, under PQ regulation to support the development of the forecast building blocks revenue, we need to determine an opex allowance for the upcoming regulatory period.

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[126] *Fibre Input Methodologies Determination 2020* [2020] NZCC 21, clause 3.7.1.

[127] Such a proposal would be subject to the thresholds being met for an individual capex proposal related to retention incentives, as set out in Attachment G.

[128] *Fibre Input Methodologies Determination 2020* [2020] NZCC 21, clause 3.7.22(1).

[129] *Fibre Input Methodologies Determination 2020* [2020] NZCC 21, clause 3.7.5(1).

[130] *Fibre Input Methodologies Determination 2020* [2020] NZCC 21, clause 3.7.13.

4.17 In evaluating Chorus' base capex and connection capex baseline proposals, we must apply the evaluation criteria in the capex IM.[131] To approve opex for Chorus' first regulatory period, we have applied the evaluation criteria described in the capex IM, including the assessment factors that are applicable to opex.

4.18 This includes considering whether the proposed expenditure meets the expenditure objective and reflects good telecommunications industry practice. The expenditure objective is that expenditure reflects the efficient costs that a prudent fibre network operator would incur to deliver PQ FFLAS of appropriate quality, during the upcoming regulatory period and over the longer term.[132]

4.19 Good telecommunications industry practice means:[133]

4.19.1 the exercise of a degree of skill, diligence, prudence, foresight and economic management, that would reasonably be expected from a skilled and experienced asset owner engaged in the management of a fibre network under comparable conditions. A decision on good telecommunications industry practice should take into account the domestic and international best practice, including international standards and factors such as the relative size, age and technology of the relevant fibre network and domestic regulatory and market conditions, including applicable law.

4.20 The evaluation criteria also require us to have regard to as many of the assessment factors as are relevant when considering whether a capex proposal has met the expenditure objective.[134] The assessment factors help us identify the different aspects of prudence and efficiency that we consider relevant when evaluating capex proposals.

4.21 Our analysis to date is based on the required considerations in clause 3.8.5(1) of the IM determination and on the assessment factors in clause 3.8.6, where relevant. The assessment factors are:

Assessment factors	
a)	Whether the proposed capex complies with all applicable legal and regulatory obligations associated with the provision of PQ FFLAS.
b)	Governance relating to proposed capex, including evidence that appropriate policies and processes have been applied.

[131] *Fibre Input Methodologies Determination 2020* [2020] NZCC 21, causes 3.8.5 & 3.8.6.

[132] *Fibre Input Methodologies Determination 2020* [2020] NZCC 21, clause 3.8.5.

[133] *Fibre Input Methodologies Determination 2020* [2020] NZCC 21, clause 1.1.4(2).

[134] *Fibre Input Methodologies Determination 2020* [2020] NZCC 21, clauses 3.8.5 and 3.8.6.

Assessment factors	
c)	Historic capital expenditure and consideration of historic rates of investment.
d)	Quantitative or economic analysis related to the proposed capex, including sensitivity analysis and impact analysis undertaken.
e)	Approach to forecasting capital expenditure, including models used to develop the capital expenditure forecasts.
f)	Relevant financial information including evidence of efficiency improvements in proposed capex.
g)	Competition effects, including specific information for sub-categories of capital expenditure that have potential impacts on competition in PQ FFLAS and other telecommunications markets.
h)	The linkages between the proposed capex and quality, including the impact the capital expenditure would have on PQ FFLAS quality outcomes.
i)	Consideration and analysis of alternatives to the proposed capex, including the impact of the alternatives on PQ FFLAS quality outcomes.
j)	The extent and effectiveness of consultation and engagement with stakeholders and the extent that feedback received has been incorporated into the capex proposal.
k)	Procurement, resourcing, and deliverability of the proposed capex.
l)	Common costs and benefits between PQ FFLAS, ID-only FFLAS and services that are not regulated FFLAS.
m)	Fibre asset and fibre network information.
n)	Mechanisms for controlling actual capital expenditure with respect to the proposed capex and achieving the PQ FFLAS quality outcomes.
o)	The extent of the uncertainty related to the: i) need for the proposed capex; ii) economic case justifying the proposed capex; and iii) timing of the proposed capex.
p)	The extent that a risk-based approach has been applied.
q)	The impact that the proposed capex has on a layer 1 service in respect of PQ FFLAS.
r)	The dependency and trade-off between the proposed capex and related operating expenditure to ensure least whole-of-life cost for managing assets and cost-efficient solutions.
s)	The accuracy and reliability of data.
t)	The reasonableness of the key assumptions, methodologies, planning and technical standards relied upon.

4.22 As explained in our IM reasons paper,[135] we consider that these evaluation criteria enable us to meet the objectives in s 166(2) of the Act (i.e. the purpose in s 162 and the promotion of workable competition for the long-term benefit of end-users, where relevant).

4.23 We consider that, based on our scrutiny and evaluation of Chorus' expenditure proposal in accordance with the capex IM and in light of the s 166(2) purposes, our recommended draft expenditure allowances meet the requirements under the IMs and Part 6 of the Act.

Context for our proposed draft decision

4.24 We discussed some unique features of the first regulatory period (PQP1) in our Approach paper.[136] One such feature is that the information asymmetry between us and Chorus is likely to be higher in PQP1 than in subsequent periods.

4.25 As a result, a firm in Chorus' context (eg ownership and subject to price-quality regulation with periodic resets) might have an incentive to inflate its expenditure forecasts, which favours them, but not end-users.[137] Additionally, we would expect the quality and robustness of information used for regulatory forecasting to improve with time as Chorus becomes familiar with fibre regulation. Therefore, there is a risk that Chorus' expenditure proposal is overstated for PQP1. It is a prudent regulatory response to approach the expenditure assessment with these risks in mind.

4.26 The extent to which Chorus has an ability to translate any inflated expenditure forecast into higher allowed revenues (and prices) in PQP1 is mainly controlled by scrutiny of Chorus' proposed expenditure.

4.27 Longer term, the incentive to overstate expenditure forecasts in future resets is influenced by other factors, such as revealed actual expenditure through ID and the repeated nature of PQP resets, as well as the rigour of our assessments of proposed expenditure.

4.28 In that sense, it is important to note that our role is not to cut proposed expenditure; our role is to assess expenditure against the expenditure objective, and any potential impacts on the promotion of workable competition in telecommunications markets where relevant.

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[135] Commerce Commission "Fibre input methodologies: Main final decisions – reasons paper" (13 October 2020), paragraphs 7.135-7.139.

[136] Commerce Commission "Fibre information disclosure and price-quality regulation: Proposed process and approach for the first regulatory period" (15 September 2020), pages 62 & 63.

[137] This incentive may be moderated by the shorter 3-year regulatory period. Other things equal, a longer regulatory period increases the incentive to overstate expenditure forecasts, as any savings relative to expenditure baseline are retained for longer (ie are more valuable).

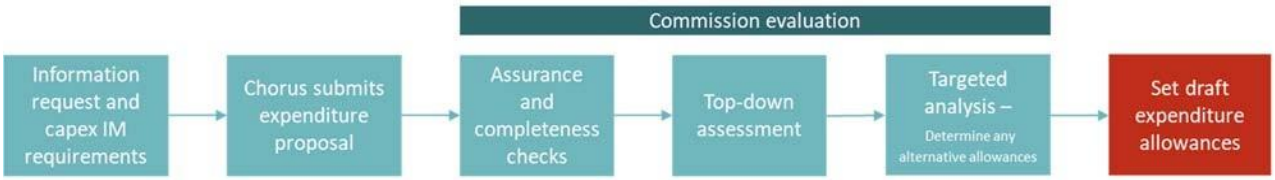
Process we have undertaken

4.29 Chorus' proposal is made up of a base capex, connection capex baseline and an opex proposal. For the base capex and opex proposals, Chorus has identified a number of expenditure sub-categories that collectively make up each proposal. We have assessed the individual sub-categories for each proposal as well as Chorus' expenditure proposal as a whole.

4.30 Chorus' connection capex baseline proposal consists of a number of 'connection types' that reflect common groups of customer connection types with similar unit costs and demand profiles. We have assessed the unit costs and volume forecasts for each connection type as well as considered other costs required to support customer connections.[138]

4.31 In undertaking our assessment of the base capex, connection capex baseline and opex proposals, we have applied a top-down assessment against the expenditure objective, supported by a targeted (bottom-up) investigation of specific expenditure sub-categories or overarching issues. Figure 4.1 below illustrates the evaluation process we have undertaken.

Figure 4.1 Evaluation process



Outline of our top-down assessment approach

4.32 We undertook a top-down assessment of Chorus' expenditure proposal. Key steps of this approach included:

4.32.1 Assessment of the robustness of the approach taken by Chorus' external expert, CutlerMerz (CM), and a review of their approach to assessing each expenditure category;

[138] Note that the base capex proposal includes a proposal for connection-related expenditure under base capex installations.

4.32.2 A top-down assessment of Chorus' expenditure proposal including a focus on requirements that affect all aspects of the capital and operational expenditure forecast in Chorus' proposal. This included the policy and planning standards used, the approach to prioritisation and challenge, demand forecasts, cost estimation methods (including contingencies), procurement efficiency, and deliverability; and

4.32.3 Consideration of stakeholder submissions from consultation on Chorus' expenditure proposal in February.

4.33 We have had regard to relevant assessment factors to assist our top-down assessment of whether Chorus' expenditure proposal meets the expenditure objective and reflects good telecommunications industry practice. The assessment factors help us identify the different aspects of prudence and efficiency that we consider relevant when evaluating capex proposals.

4.34 The assessment factors we have taken particular regard to for our top-down assessment of Chorus' expenditure proposal are:

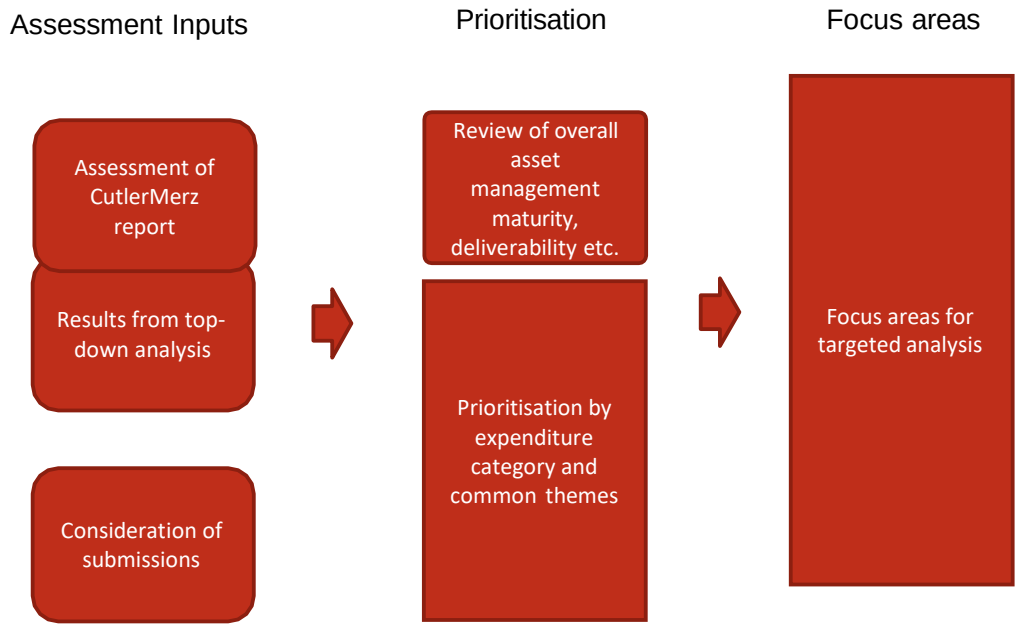
	Assessment factors
a)	Whether the proposed capex complies with all applicable legal and regulatory obligations associated with the provision of PQ FFLAS.
b)	Governance relating to proposed capex, including evidence that appropriate policies and processes have been applied.
c)	Historic capital expenditure and consideration of historic rates of investment.
e)	Approach to forecasting capital expenditure, including models used to develop the capital expenditure forecasts.
f)	Relevant financial information including evidence of efficiency improvements in proposed capex.
h)	The linkages between the proposed capex and quality, including the impact the capital expenditure would have on PQ FFLAS quality outcomes.
j)	The extent and effectiveness of consultation and engagement with stakeholders and the extent that feedback received has been incorporated into the capex proposal.
k)	Procurement, resourcing, and deliverability of the proposed capex.
n)	Mechanisms for controlling actual capital expenditure with respect to the proposed capex and achieving the PQ FFLAS quality outcomes.
r)	The dependency and trade-off between the proposed capex and related operating expenditure to ensure least whole-of-life cost for managing assets and cost-efficient solutions.
t)	The reasonableness of the key assumptions, methodologies, planning and technical standards relied upon.

4.35 The top-down assessment helped identify potential focus areas in Chorus' expenditure proposal for the targeted analysis stage. The findings from this assessment are included in the section in this chapter entitled Assessment of general areas of Chorus' proposal and expenditure forecasts.

Targeted analysis

4.36 We supported our top-down analysis through targeted analysis of specific focus areas. Figure 4.2 below illustrates how we determined the focus areas through a process of prioritisation.

Figure 4.2 Prioritisation process



4.37 We used the following characteristics to determine focus areas:

4.37.1 Materiality of expenditure category;

4.37.2 Low level of justification;

4.37.3 Issues raised in top-down assessment;

4.37.4 Potential for gaming or deliverability risk;

4.37.5 High increase from historic cost;

4.37.6 Lack of visibility of benefits;

4.37.7 Potentially discretionary spend;

4.37.8 Potential to impact on adjacent markets; and

4.37.9 Stakeholders identified issue.

4.38 The above characteristics were created to assist us to develop a priority list of expenditure sub-categories to focus our targeted evaluation on. We consider this list of characteristics consistent with the expenditure objective in the capex IM (including the assessment factors).

4.39 As a result, we reviewed in detail the analysis and assumptions that drive approximately 67% of Chorus' proposed base capex, proposed opex and 100% of the connection capex baseline allowance.

4.40 To support our targeted analysis, we requested additional information from Chorus as needed through an RFI process and several workshops with Chorus to understand and evaluate its proposal.[139]

Expenditure Overview

4.41 The following sections describe the results from our assessment of Chorus' base capex, connection capex baseline, and opex proposals.

4.42 This section is structured as:

4.42.1 Assessment of general areas of Chorus' proposal and expenditure forecasts;

4.42.2 Summary of our decisions on additional reporting requirements for PQP1;

4.42.3 Our decisions on cost allocation and cost escalation;

4.42.4 Base capex allowance;

4.42.5 Connection capex baseline allowance; and

4.42.6 Opex allowance.

Assessment of general areas of Chorus' proposal and expenditure forecasts

4.43 Some of our assessment of Chorus' proposal has been focused on themes or areas that apply and affect all or a number of expenditure sub-categories. This section describes our assessment of these general themes and areas of Chorus' proposal.

4.44 Our assessment of these general areas fall into the following:

4.44.1 Individual capex;

4.44.2 Process and timing of individual capex determinations;

[139] We issued and received responses on 22 RFIs covering a diverse range of subject areas and information types. We have published this list of RFIs separately on our website.

4.44.3 Chorus' five-year budget planning process as a basis for the proposal;

4.44.4 Regulatory overlays to Chorus' five-year plan;

4.44.5 Demand forecast;

4.44.6 Labour cost modelling;

4.44.7 Historic trends in Chorus' expenditure;

4.44.8 Asset management maturity; and

4.44.9 Chorus' approach to consultation with its stakeholders.

4.45 Some of the findings from our assessment of Chorus' proposals apply across the expenditure categories. In some cases, we have estimated the impact of these on the expenditure allowances. Where they apply to a specific expenditure category these are detailed in the discussion of that category set out in the subsequent sections outlining our decisions on base capex allowance, connection capex baseline allowance and opex allowance respectively.

4.46 Our assessment of Chorus' proposal highlighted areas where we would like to see on-going improvements in Chorus' processes. We have identified additional reporting requirements we consider necessary on the areas relating to asset management, cost estimation and Chorus' approach to consultation with its stakeholders. The decisions and reasons relating to these additional reporting requirements are explained in the relevant section below. A summary of the additional reporting decisions can be found at paragraphs 4.92 to 4.95.

Individual Capex

4.47 Our draft decision is to exclude from the allowances Chorus' proposed expenditure under three areas. These are:

4.47.1 Incentive connection capex (referred to as incentive payments);

4.47.2 Retention capex (from base capex installations);[140] and

4.47.3 Innovation capex.

[140] In this instance we refer to retention capex as incentive payments for existing connections.

4.48 As allowed for in the Capex IM, we propose that Chorus submits individual capex proposals for these areas of capital expenditure under the individual capex mechanism.[141]

4.49 We consider that with respect to these proposed capex areas, it is in the long-term benefit of end-users that they should be approved and reported separately to assist the Commission in its evaluation of the capital expenditure.

4.50 If Chorus intends to submit an individual capex proposal, Chorus must notify the Commission in writing that it intends to do so and must include an individual capex design proposal with the notice. [142]

4.51 As noted above, Chorus may utilise material included in the PQP1 base capex and connection capex baseline proposals submitted in December 2020 for any individual capex proposal it wishes to submit for these expenditure areas. When considering such an individual capex design proposal and individual capex proposal, we will also account for the development of documentation and certification, where these have been covered as part of base capex or connection capex baseline requirements.

4.52 If Chorus proposes to submit an individual capex proposal for incentive payments (either for new or existing connections), Attachment G sets out threshold information Chorus would need to provide in relation to the specifics of incentive payments, as part of any individual capex proposal. It also includes an overview of our indicative approach to assessing incentive payments as part of an individual capex proposal.

4.53 Our decisions relating to why we have excluded certain proposed capex from the allowances are discussed in more detail in the base capex and baseline connection capex sections in paragraphs 4.148 to 4.153 and paragraphs 4.182 to 4.185 respectively.

Process and timing of individual capex determinations

4.54 The Commission may determine an individual capex allowance at any time subject to receiving an individual capex proposal from Chorus and following the appropriate process as set out in the capex IM. If Chorus submits an individual capex proposal in sufficient time prior to the start of PQP1, any approved individual capex allowance may be included into forecast allowable revenues for PQP1.

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[141] Subject to the thresholds being met for an individual capex proposal for retention incentives as set out in Attachment G.

[142] *Fibre Input Methodologies Determination 2020* [2020] NZCC 21, refer to clause 3.7.23 for the requirements relating to the individual capex proposal process.

4.55 For other individual capex proposals submitted during PQP1, the revenue Chorus would have received from the approved individual capex allowance, will be added as a wash-up amount in a future PQ determination.

4.56 As allowed for in the Capex IM, Chorus may submit expenditure proposals for these areas of capital expenditure under the individual capex mechanism.[143]

4.57 These are discussed in more detail in the sections on each allowance below.

Chorus' five-year budget planning process as a basis for the proposal

4.58 Chorus' proposal was developed or adapted from its five-year planning and budget establishment process. In our view, this has affected the overall quality and consistency of the information provided as part of the proposal. In particular, we note that budgeting processes consist of individual groups independently developing estimates and forecasts while faced with the incentives associated with the top down reviews that are typical with such processes. This means the justification for the expenditure is in many cases unclear, and the linkages between investment and benefits has not been made explicit.

4.59 The consequence of Chorus' approach is that the proposal and underlying information presented to us is less transparent than what would normally be expected in a regulatory process. As we note above, this is the first time Chorus has submitted a regulatory expenditure proposal.

4.60 For PQP2, we would expect a more consistent and standardised approach to the development of the proposal, and a greater level of justification for the expenditure. We also consider that, for future proposals, the inclusion of features such as standardisation of cost estimation, consistency in approach to labour modelling, and justification of base year expenditure are areas that would lead to improvements in both the information content of a proposal and the realisation of efficiencies within Chorus' business.

4.61 Therefore, our draft decision is that Chorus provide a cost estimation / asset data improvement roadmap by 30 June 2022. The roadmap should indicate areas of improvement Chorus will undertake during PQP1 to prepare for improvements for the way it undertakes cost estimation for its expenditure proposal for the second price quality path. We propose to issue a s 221 notice along with our final PQ determination in November 2021 to require Chorus to provide the additional reporting requirements.

[143] Subject to the thresholds being met for an individual capex proposal for retention incentives as set out in Attachment G.

4.62 Our observations are consistent with the asset management maturity review which Chorus initiated as part of its preparation for its regulatory submission. Chorus' asset management maturity is discussed further below.

Regulatory overlays to Chorus' five-year plan

4.63 In preparing its expenditure forecasts for PQP1, Chorus has applied a number of upward adjustments to its forecasts from its five-year business planning process. Chorus have termed these adjustments "regulatory overlays". One such overlay includes the addition of expenditure which Chorus considers is required to meet its fibre PQ regulatory requirements.

4.64 Chorus has also reinstated some expenditure which was removed from its five-year plan as a result of a management and board challenge process, and reassessed some of the assumptions underlying its forecasts.

4.65 We have assessed Chorus' regulatory overlays and made some adjustments to Chorus' forecast allowances where we disagree with its changes or consider Chorus has provided inadequate rationale to diverge from the five-year business plan.

4.66 Our decisions are discussed later in the sections on base capex and opex allowance decisions. For decisions on how we have applied our assessment of Chorus' regulatory overlays to base capex, refer to paragraphs 4.165 to 4.168.

4.67 For opex, we have not applied a general adjustment across total opex based on our assessment of Chorus' approach to regulatory overlays. However, we have assessed specific regulatory overlays that relate to individual opex sub-categories. Our decisions on how we have applied this assessment are explained in the relevant opex sub-category in the section Opex allowance.

Historic trends in Chorus' expenditure

4.68 A review of historical trends against forecasts was undertaken using data provided by Chorus encompassing allocated historical capex from 2016 to 2019 and forecasts for 2020 to 2026.

4.69 In contrast to the increasing trend for years 2017 to 2020, capex (including both base capex and baseline connection capex) is forecast to decrease up to the end of PQP1. As Chorus is transitioning from a focus on network build to more of a focus on network operation, a decrease in capex is expected over time. However, in 2025 total capex is forecast to increase again [redacted]

4.70 Similarly, a review of historical trends against forecasts was undertaken using data provided by Chorus encompassing allocated historical opex from 2016 to 2019 and forecasts for 2020 to 2026.

4.71 [[Total opex compound annual growth rate (CAGR) for the forecast period (2020–2026) is similar to historical CAGR (2017–2019). However, when analysing forecasts up to the end of PQP1 (2020–2024) the CAGR is significantly higher than the historical CAGR. The forecast increase in opex for the first three years (2020–2022) results in a higher CAGR for PQP1 compared with historical opex.

4.72 High forecast increases in opex for years 2020-2021 could potentially result in over-estimated starting opex for PQP1. Consequently, we have considered the above historic trends in our targeted evaluation of Chorus' expenditure sub-categories. In some cases, reasons for these increasing trends were unclear and this has influenced our decisions on those particular sub-categories. We discuss how we take into account historic trends in our decisions on these sub-categories in the relevant sections later in this paper.]]

Labour cost modelling

4.73 We reviewed Chorus' approach to modelling labour costs for its PQP1 proposed expenditure. We aimed to understand how labour costs were modelled for Chorus' expenditure proposal across its different expenditure categories. We also aimed to understand where forecasts had included any efficiency assumptions in the forecasts and significant increases/reductions in staff counts.

4.74 In our assessment, we identified that Chorus included a [[redacted] of net labour costs during PQP1. We considered that this increase to the expenditure proposal from the five-year business plan was partially unjustified. We also identified the potential for reductions to Network Operations and Asset Management opex due to significant uncertainty of staff numbers required in these areas going forward.

4.75 We originally considered reducing the labour overlay and a small proportion of Network Operations and Asset Management opex to reflect uncertainty and unjustified expenditure. However, we have already made significant reductions to Chorus opex sub-categories to reflect uncertainty with regulatory overlays, unjustified increases in expenditure, and as well as reductions to reflect expected efficiency benefits from IT capex.

4.76 We conclude that it is reasonable not to introduce further reductions to directly address the labour overlay.

Demand forecast

4.77 Our assessment has shown Chorus' forecast demand is higher than expected now MBIE has revised down the key inputs on which Chorus' forecast was initially based. A high forecast affects demand-driven expenditure by increasing baseline connection capex, and to a much lesser extent, forecast opex.

4.78 A key input into Chorus' forecasts is MBIE's National Construction Pipeline Report, 2019.[144] The more recent December 2020 MBIE forecasts expect a reduction of 28.4% from the 2019 forecasts. MBIE notes a caveat that there is considerable uncertainty associated with its forecasts, as the impact of the pandemic on construction drivers remains unclear.

4.79 The estimated impact on demand of a reduction in installations due to the latest MBIE forecasts for dwelling consents is set out below. Table 4.5 shows changes in the forecast of demand compared with forecasts used by Chorus in its expenditure proposals. These changes in forecast demand were then used to determine allowances for relevant expenditure categories. These are explained in paragraph 4.80.

Table 4.5 Changes in forecast demand due to the updated MBIE forecast

	2020	2021	2022	2023	2024
Connections	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Net installations	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
ATPU (Mbps)	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
System peak (Tbps)	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

4.80 The expected impact on the expenditure allowances are:

4.80.1 Baseline connection capex: the lower connection volume forecast results in a reduction of $21.8m in baseline connection capex.

4.80.2 Opex: the change in forecast demand is expected to result in a reduction of $1.5m within maintenance opex over PQP1.

[144] Ministry of Business, Innovation and Employment "National Construction Pipeline Report" (August 2019).

4.80.3 Base capex: the system peak bandwidth forecast is a key driver for network related capex. The uncertainty associated with the system peak bandwidth forecast is extremely high. Broadband usage is still evolving, responding to external factors, such as the availability of new services and applications, as well as special events and major shocks. Forecasting system peaks beyond the short term (one to two years) therefore carries considerable uncertainty. We anticipate the margin of error around the forecasts by the end of PQP1 could be of the order of plus or minus 30%. The forecasts, accounting for the reductions described above, are well within these bounds so no adjustments to base capex have been made on these grounds.

Asset management

4.81 Chorus commissioned AMCL, an asset management consultancy, to undertake an assessment of its asset management maturity. AMCL's detailed findings supported our initial top down analysis that found Chorus' governance framework appeared to be appropriate and consistent with good telecommunications industry practice, however much of the quantitative forecast information lacked detail, was descriptive, and some of Chorus' processes as described lacked granularity and justification.

4.82 By way of example, AMCL found that:

4.82.1 Overall Chorus' asset management maturity is at the midpoint for organisations which have had their first asset management maturity assessment. AMCL acknowledge the robustness of many of the underlying processes that exist within Chorus, but have identified many potential improvements across key areas of asset management;

4.82.2 The last eight years of building the fibre network has led to Chorus adopting many leading practices within the lifecycle delivery subject group. This has resulted in higher scores compared to many other utilities;

4.82.3 Chorus' Capital Council (CCC) drives good financial decision-making for capital investment, which has a positive impact on asset investment;

4.82.4 [redacted]

4.82.5 [redacted]

4.82.6 [redacted]

4.82.7 [redacted]

4.82.8 [redacted]

4.82.9 [redacted]

4.83 Based on our own analysis alongside the observations from the AMCL report, we consider it is unlikely that the proposed expenditure is forecast at an efficient level. Therefore, we consider there is potential to further reduce the allowances to reflect more efficient outcomes. We have done this through targeted analysis of specific expenditure categories and the application of an overall adjustment to the allowances.

4.84 We note that Chorus has included expenditure for asset management improvement within its base capex proposal. We also note that it appears no efficiency adjustment have been made to reflect the improvement in asset management, forecasting improvements or data management.

4.85 For PQP1, our draft decision is to require additional reporting on Chorus' asset management improvement through the development of an asset management development roadmap and reporting on progress against milestones within the roadmap, reporting on standardisation of cost estimation and forecasting methodologies, and reporting on improvements in data management.

4.86 As a result, we would expect significant improvements for the information provided by Chorus for the PQP2 proposal.

Chorus' approach to consultation with its stakeholders

4.87 Chorus submitted an engagement plan[145] alongside its expenditure proposal and conducted consultation with its stakeholders on its investment plans for PQP1 prior to submitting its expenditure proposal to the Commission in December 2020. Chorus also conducts regular ongoing consultation with its customers (Retail Service Providers), particularly to support product development.

[145] An engagement plan is a reporting requirement in the Chorus capex IM and forms part of the Integrated Fibre Plan.

4.88 We considered Chorus' approach to consultation with its stakeholders as part of our top-down assessment of its expenditure proposal. In our view, Chorus' expenditure proposal relies heavily on business as usual consultation, and it appears that minimal specific input and feedback from key stakeholders has been incorporated into the proposal for PQP1.

4.89 We acknowledge the challenges with timeframes facing Chorus to ensure effective consultation on its current PQP1 proposal, given the nascent features of the regulatory regime. We also acknowledge challenges to public consultation that include confidential information.

4.90 However, in future periods we consider effective consultation of Chorus' proposal will be a high priority to ensure that stakeholder requirements are an input to the development of the proposal and that greater consideration of expenditure and quality are made available to stakeholders.

4.91 We therefore propose that Chorus provide an updated engagement plan by 30 June 2022 as part of our draft decision on Chorus' expenditure proposal.

Summary of our decisions on additional reporting requirements for PQP1

4.92 Our assessment of Chorus' proposal highlighted areas where we would like to see on-going improvements in Chorus' processes. We consider that these improvements will lead to future expenditures that reflect the costs of a prudent and efficient supplier and, in particular, improve the delivery of FFLAS services.

4.93 Accordingly, our draft decision is to require Chorus to provide:

4.93.1 An asset management development roadmap by 30 June 2022;

4.93.2 A cost estimation/asset data improvement roadmap by 30 June 2022;

4.93.3 An annual report on the progress against the asset management development roadmap and the cost estimation/data improvement roadmap;

4.93.4 An updated engagement plan by 30 June 2022.

4.94 The reasons behind our reporting requirement decisions are covered in the previous sections on asset management from paragraphs 4.81 to 4.86, Chorus' five-year budget planning process as a basis for the proposal (for cost estimation) from paragraphs 4.58 to 4.62. and Chorus' approach to consultation with its stakeholders from paragraphs 4.87 to 4.91.

4.95 We propose to issue a s 221 information request along with our final PQ determination in November 2021 to require Chorus to provide the reporting requirements described in paragraph 4.93. We are interested in stakeholders' views on these additional reporting requirements including the form and content of the proposed roadmaps and engagement plan Chorus must provide in 2022.

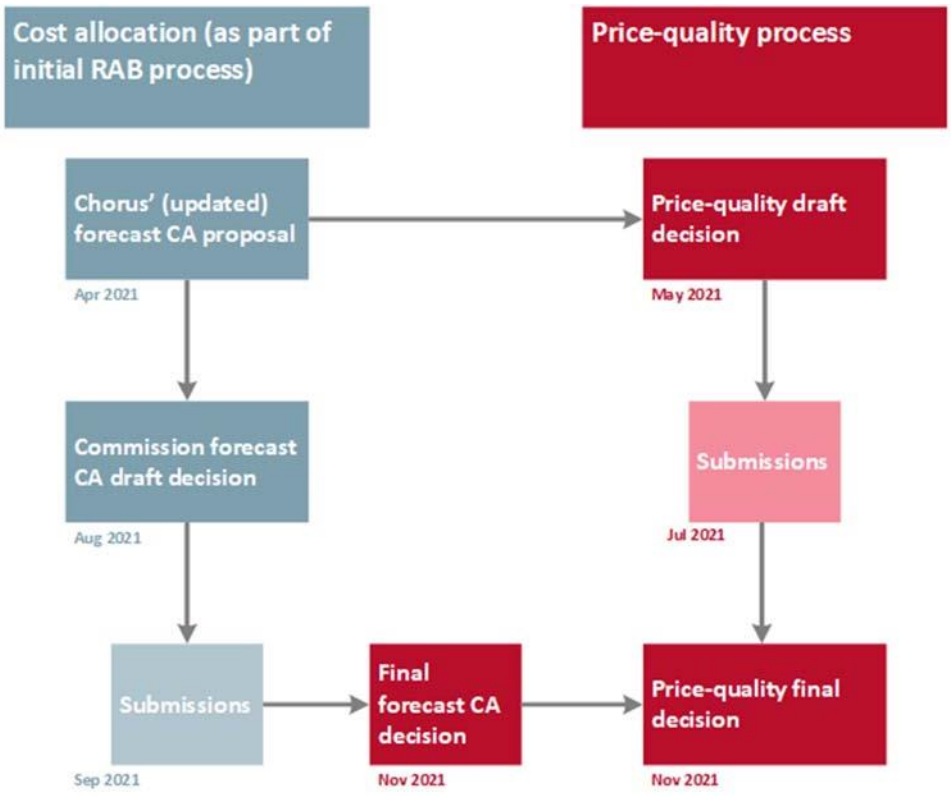
Our decisions on cost allocation and cost escalation

Approach to cost allocation for Chorus' forecast expenditure

4.96 We have not accounted for any change in cost or asset allocation or changes within the cost or asset allocation forecasts within this paper. Rather, we will consult on cost and asset allocation as it impacts Chorus' expenditure allowances in August as part of our planned draft decisions on Chorus' initial PQ RAB and associated cost and asset allocation. The allocators proposed for expenditure are consistent with those used by Chorus to allocate shared costs and asset values in Chorus' opex aggregation and initial RAB valuation models.

4.97 Under our proposed process, we intend to update expenditure allowances as part of our August 2021 initial RAB and associated cost and asset allocation draft decisions. We will take account of submissions on cost and asset allocation, as it impacts Chorus' expenditure allowances, when we make our final PQ decisions in November 2021. The Figure below outlines our planned approach.

Figure 4.3 Proposed process to update expediture allowances with setting of the intial RAB



Background to our decisions relating to cost allocation for Chorus' expenditure allowance

4.98 To determine the expenditure allowances for PQP1, we need to ensure that Chorus's proposed expenditure complies with the cost allocation IM. This means that the forecast expenditure we determine needs to represent expenditure that has been allocated to PQ FFLAS only.

4.99 Chorus has combined its approach to allocating costs for its expenditure proposal with its cost allocation modelling for the fixed loss asset and initial RAB valuations.

4.100 Considering the interrelated nature of Chorus' approach to modelling we need to be mindful of Chorus' end-to-end modelling process, including the possibility of errors (including possible double recovery) and that a change of allocator, or allocator value, may impact the calculation of Chorus' Financial Loss Asset (FLA), initial RAB and PQP1 expense proposals.

4.101 While the focus of this assessment is on Chorus' expenditure proposal for PQP1 we remain mindful this proposal sits alongside Chorus' financial loss asset proposal and Initial RAB proposal for PQP1.

4.102 Our final decisions, therefore, on Chorus' expenditure proposal are dependent on the outcome of our consultation on Chorus' initial price quality RAB proposal. Our current process sets out that we will consult on Chorus' transitional initial PQ RAB and financial loss asset in August 2021, including our decisions relating to cost allocation.

4.103 We will also consult on Chorus' approach to cost allocation for the proposed expenditure for PQP1 including the proposed impact of allowances from any changes in PQ FFLAS allocations. Our draft decisions in the August consultation paper will consider stakeholders views on the issue of cost allocation submitted on our consultation of Chorus' expenditure proposal in February 2021.

4.104 We will update expenditure allowances after the results of our consultation in August 2021 to reflect our final decisions on Chorus' approach to cost allocation. These decisions will be made in our final PQ decisions in November 2021.

4.105 This process allows us to conduct further scrutiny of Chorus' approach to cost allocation for its expenditure proposal and to combine our assessment at the same time as we assess and consult on Chorus' initial PQ RAB and financial loss asset.

Our decisions on Chorus' approach to cost escalation

4.106 Our draft decision is to use an alternative to Chorus' cost escalation proposal. We will escalate approximately half of the constant price expenditure forecast with the non-CPI escalators that Chorus proposed, and the remaining expenditure with a combination of 'Just CPI' and the weighted average approach to escalation applied in Part 4 for EDBs. Please refer to paragraph 4.109 below for the detail of our draft decision.

4.107 Our draft decision is to update all escalator forecasts for the final expenditure allowance decision.[146] We will update the forecasts for the CPI index for 'Just CPI' and for the eight RPEs, as well as the NZD/USD exchange rate forecast for the capex sub-categories that Chorus proposed. Please refer to paragraph 4.115 for the detail of our draft decision.

4.108 Subpart 7 of Part 3 of the IMs requires us to determine Chorus' capital expenditure allowance. One of the steps in this process is to determine cost escalators in order to inflate the real expenditure allowance to a nominal expenditure allowance that is suitably adjusted for price changes in future years.

Problem definition

4.109 The cost of the inputs regulated businesses require to deliver the outputs expected of them changes over time, for predictable reasons beyond their control. Put another way, the expenditure allowances we produce in constant-price terms must be adjusted for input price inflation, to be incorporated into the financial model, in order to provide an expectation of real financial capital maintenance.

Relevant considerations

4.110 We have considered the following matters in making these decisions:

4.110.1 We consider that a nominal expenditure forecast that is consistent with Chorus' cost base results in an efficient allowance, meets the expenditure objective of cost efficiency and prudency, and reflects good telecommunications industry practice;

4.110.2 We also consider that the economic framework, including the incentive framework and the principles of real financial capital maintenance and risk allocation are relevant:

[146] Note that we have not updated the escalator forecasts for this draft decision.

4.110.2.1 A key consideration in providing an ex-ante expectation of real FCM is how investors are compensated for inflation,[147] this involves escalating real expenditure with forecast input cost inflation and foreign exchange that is free of systematic bias;[148]

4.110.2.2 Risk allocation is also a key consideration - we consider that Chorus has some control over its exposure to input cost inflation. Therefore, it should be exposed to the risk of changes to the cost of inputs over time, as this provides incentives to operate in efficient ways given input costs (eg vary its exposure to certain input costs or contracting arrangements). However, by setting input cost inflation and CPI forecasts for the revenue path at the same time, and by replacing forecast CPI with actual CPI in the revenue path, some of the inflation risk is passed to consumers. By escalating input costs by forecast input cost inflation and foreign exchange in setting an ex-ante allowance, PQ regulation provides an ex-ante expectation of normal returns, but does not guarantee an ex-post normal return;[149]

4.110.2.3 A further consideration is the incentive regulated providers may have to game expenditure forecasts by over forecasting nominal input costs. This is why we scrutinise the forecasts used. We note that the repeated nature of regulation lessens this incentive and risk.[150]

4.110.3 PQP1 is a short initial regulatory period and we may vary our approach to cost escalation at the next reset, once we have a better understanding of Chorus' exposure to input cost pressures.[151]

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[147] See Commerce Commission "Fibre input methodologies: Main final decisions – reasons paper" (13 October 2020), paragraph 3.317.

[148] See Commerce Commission "Fibre input methodologies: Main final decisions – reasons paper" (13 October 2020), paragraphs 2.295 to 2.295.2.

[149] Allocation of risk is an economic principle. Commerce Commission "Fibre information disclosure and price-quality regulation: Proposed process and approach for the first regulatory period" (15 September 2020), paragraph 3.79.1.

[150] See Commerce Commission "Fibre information disclosure and price-quality regulation: Proposed process and approach for the first regulatory period" (15 September 2020), paragraphs 3.86.1.

[151] See Commerce Commission "Fibre input methodologies: Main final decisions – reasons paper" (13 October 2020), paragraph 7.30.

Draft decision for capital expenditure inflators

4.111 Our draft decision for capital expenditure is to use seven inflators, including six Real Price Effect (RPE) indices and the Consumer Price Index (CPI). Our draft decision is to use NZIER forecasts and the following proportions:[152]

4.111.1 Labour Cost Index (LCI) 'Professional and Technical Services' index (25%); and

4.111.2 Producers Price index (PPI) Outputs index for all industries (4%); and

4.111.3 PPI Outputs 'Heavy and Civil Engineering Construction' index (8%); and

4.111.4 USA Producer Price Index by Industry: Fibre Optic Cable Manufacturing (3%); and

4.111.5 PPI Outputs 'Electronic and Electrical Equipment Manufacturing' index (14%); and

4.111.6 Consumer Price Index (CPI or 'Just CPI' in Chorus' proposal) (30%); and

4.111.7 Capital goods price index (CGPI) (16%).[153]

Alternatives considered for capital expenditure

4.112 We have considered Chorus' escalation proposal and implicit weightings:[154]

4.112.1 LCI 'Professional and Technical Services' index (23%); and

4.112.2 PPI Outputs index for all industries (4%); and

4.112.3 PPI Outputs 'Heavy and Civil Engineering Construction' index (7%); and

4.112.4 USA Producer Price Index by Industry: Fibre Optic Cable Manufacturing (3%); and

4.112.5 PPI Outputs 'Electronic and Electrical Equipment Manufacturing' index (13%); and

4.112.6 Consumer Price Index (CPI) (49%).

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[152] These proportions are calculated using draft decision expenditure for capex (at constant 2019/2020 prices).

[153] For the real price change for this RPE escalator we have used a NZIER data series from February 2021 which includes actual values up to September 2020 and forecast values to December 2025 with "Base Sep qtr 1999 = 1000". We will update this forecast for the final decision consistently with the other escalators.

[154] We have calculated these proportions using Chorus' proposed expenditure for capex (at constant 2019/2020 prices) and proposed RPEs. See Chorus "RT02 Cost escalation" (1 April 2021).

Draft decision for operating expenditure

4.113 Our draft decision for operating expenditure is to use six inflators. Our draft decision is to use NZIER forecasts and the following proportions:[155]

4.113.1 LCI 'Professional and Technical Services' index (34%); and

4.113.2 PPI Outputs index for all industries (17%); and

4.113.3 PPI Published output commodities 'Rent of commercial land and buildings' (4%) index; and

4.113.4 CPI (22%); and

4.113.5 LCI All Industries Index (23%).[156]

Alternatives considered for operating expenditure

4.114 We have considered Chorus' proposal and implicit weightings:[157]

4.114.1 LCI 'Professional and Technical Services' index (34%); and

4.114.2 PPI Outputs index for all industries (2%); and

4.114.3 PPI Published output commodities 'Rent of commercial land and buildings' (5%) index; and

4.114.4 Consumer Price Index (CPI) (60%).

Draft decisions to update forecasts

4.115 Our draft decision is to update all escalator forecasts for the final expenditure allowance decision.[158]

4.116 We will update the forecasts for the CPI index for 'Just CPI' and for the eight RPEs. We will also update the NZD/USD exchange rate forecast from NZIER for the capex sub-categories that Chorus proposed.[159]

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[155] These proportions are calculated using draft decision expenditure for opex (at constant 2019/2020 prices).

[156] For the real price change for this RPE escalator 'LCI all industries' we have used a data series obtained from Chorus. This was provided by Principal Economics and NZIER to Chorus in August 2020 and includes actual values up to June 2020 and forecast values to June 2025.

[157] We have calculated these proportions using Chorus' proposed expenditure for opex (at constant 2019/2020 prices) and proposed RPEs. See Chorus "RT02 Cost escalation" (1 April 2021).

[158] We note that we have not updated the escalator forecasts for this draft decision.

[159] The timing of the forecast CPI that is used to forecast input cost inflation will match the timing of the forecast CPI that is used to smooth the revenue path (see paragraph A60). In practice we expect to use NZIER's Quarterly Prediction for September 2021, due August 31 2021. The source of NZIER exchange rate data is Reserve Bank of New Zealand.

4.117 Updating the forecast indices will provide a more efficient expenditure forecast and better account for the impact of COVID-19 on the forecasts for the cost escalation series.

Analysis

4.118 The purpose of these inflators is to allow Chorus the costs of changes in the real prices of inputs that are outside of its control. This ensures a nominal expenditure allowance that is suitably adjusted for price changes in future years.

4.119 There will likely be different cost drivers for different components of expenditure. For Chorus' expenditure allowance we are able to apply discretion to the specific circumstances and cost categories that will apply to Chorus during the PQP1 period.

4.120 In its expenditure proposal, Chorus applied some recommendations from NIZER for forecasting the cost escalators. For example, the six RPE in Chorus' proposal are among the wider set of RPEs that NZIER recommended to Chorus.[160]

4.121 We note that, although NZIER recommendations to Chorus provide options for matching cost escalators to granular cost drivers, they do not provide cost escalators at the expenditure sub-category level and do not include cost escalator proportions.[161]

4.122 Chorus proposes to escalate (47%) of expenditure with select RPE indices, see paragraphs 4.112 and 4.114.[162] Chorus applies combinations of RPE indices at the subcategory level and explains the basis for the RPE index proportions:[163]

> The RPE category weightings were calculated using the underlying forecast cost models and other accounting information, as the percentage cost associated with the broad activity types (e.g. technical labour, equipment, fibre) corresponding to the broadly-based indices.

[160] For Chorus' cost escalation proposal see Chorus “RT02 Cost escalation” (1 April 2021). For NZIER recommendations to Chorus see New Zealand Institute of Economic Research "Chorus Price Index information and COVID-19" (23 September 2020), tables 3 to 5.

[161] New Zealand Institute of Economic Research "Description of Chorus Price Index Information - Memo" (31 March 2020), tables 5 to 7, and New Zealand Institute of Economic Research "Chorus Price Index information and COVID-19" (23 September 2020), tables 3 to 5.

[162] We have computed this proportion from Chorus' proposal, See Chorus “RT02 Cost escalation” (1 April 2021).

[163] Chorus “Modelling and cost allocation report” (16 December 2020), page 6.

4.123 By matching cost escalators to cost drivers, we consider that Chorus' approach selects cost escalators that are most relevant to Chorus' actual costs. For example, for the 'Standard Installations' capex subcategory, Chorus' proposal matches the following cost drivers (RPE categories) and RPE indices, on a proportional basis:[164]

4.123.1 4% ducts - PPI civil,

4.123.2 11% technical labour - LCI prof,

4.123.3 6% equipment - PPI O E&E,

4.123.4 4% fibre - U.S Fibre.

4.124 We have also received information from Chorus demonstrating this form of mapping for all expenditure subcategories, as well as the granular underlying accounting data.

4.125 We note that Chorus has applied a subset of the relevant RPE indices that NZIER proposed. For example, Chorus has applied one of the labour cost escalators proposed in NZIER's report. [165]

4.126 We note that Chorus' RPE set is less detailed than the full set of options in NZIER's report but we also recognise that matching escalators to cost drivers is a balancing act and additional escalators may not provide further accuracy.

4.127 We consider that Chorus' set of non-CPI RPEs meets the expenditure objective of cost efficiency and prudency given that it is consistent with Chorus' cost base.

4.128 Chorus proposes to escalate (53%) of expenditure with the CPI index rather than with real price effects **(RPE)** indices. This aspect of Chorus' proposal departs from NZIER advice to Chorus as well as Part 4 precedent.[166]

4.129 We also note that NZIER proposed the CPI index to Chorus as one of two escalator options for the singular cost activity 'payments to RSPs to use their poles' and not as a primary escalator.[167]

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[164] See Chorus “RT02 Cost escalation” (1 April March 2021), pages "1. Overview" and "3. Capex - RPE Indices", Chorus “Modelling and cost allocation report” (16 December 2020), page 6, and Chorus “NZIER report September 2020” (16 December 2020), tables 4 and 5.

[165] Chorus “NZIER report September 2020” (16 December 2020), table 5. NZIER also proposed LCI ‘Construction’ and LCI ‘Administrative and Support Services’ as possible cost escalators for some cost inputs.

[166] Chorus illustrates with the example of “Installations – standard installations” in Chorus “Modelling and cost allocation report” (16 December 2020), page 5.

[167] New Zealand Institute of Economic Research "Description of Chorus Price Index Information - Memo" (31 March 2020), page 2.

4.130 Chorus proposes to escalate two cost types with the CPI index:

4.130.1 Field service agreements (FSA) or contracts indexed to CPI ('cost categories where there is a significant component from fixed price contracts or contracts specifying annual CPI increases');[168] and

4.130.2 Balance of costs.

4.131 Our draft decision is to escalate the proportion of expenditure that Chorus attributes to FSAs with the CPI index. We have received information from Chorus at the subcategory level that links approximately 27%[169]of expenditure to these FSA contracts.

4.132 For the remaining expenditure 'balance of costs' that Chorus proposes to escalate with the CPI index, our view is that other RPEs may be more appropriate. Chorus has not provided a clear rationale for escalating these cost inputs with CPI, and consumer goods are unlikely to be a major cost input for Chorus.

4.133 Our draft decision is to escalate 'balance of costs' expenditure with the mixture of capital and labour escalators that we use in Part 4 for EDBs. This is a simplifying assumption that applies general inflators:

4.133.1 For capex this is NZIER forecasts of the capital goods price index (CGPI) (100%);[170]

4.133.2 For opex this is the weighted average of NZIER forecasts of the all-industries labour cost index (LCI) (LCI All Industries index) (60%) and NZIER forecasts of the PPI Outputs index for all industries (40%).[171] [172]

4.134 While other escalators may better align with the cost inputs underlying Chorus' 'balance of costs' expenditure amount, we consider these are more appropriate than the CPI index.

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[168] Chorus "Modelling and cost allocation report" (16 December 2020), page 6.

[169] This 27% is an approximation produced through Commission analysis of Chorus and Commission information. Specifically, we have calculated this by removing the 'balance of costs' proportions at the subcategory level from Chorus' 'Just CPI' escalator, and then by determining the percentage of our draft decision expenditure amount (constant 2019/2020 prices) that the remaining 'Just CPI' escalator would apply to.

[170] Commerce Commission "Default price-quality paths for electricity distributions businesses from 1 April 2020: Final decisions - reasons paper" (27 November 2019), paragraph B166.

[171] Commerce Commission "Default price-quality paths for electricity distributions businesses from 1 April 2020: Final decisions - reasons paper" (27 November 2019), paragraph A128.

[172] Commerce Commission "Low-cost forecasting approaches: Final decision EDB DPP 2015 to 2018" (28 November 2014), paragraph 3.37.

Our draft decisions give effect to the s 166(2) purposes

4.135 We consider that these draft decisions best give (or are likely to best give) effect to the purpose in s 162 as they:

4.135.1 compensate prudent nominal expenditure forecasts that are free of systematic bias through the use of recent and independent RPE and CPI indices, and FX forecasts, thereby safeguarding Chorus' incentives to invest by providing an expectation of real financial capital maintenance under s 162(a); [173] and

4.135.2 limit Chorus' ability to extract excessive profits under s 162(d) by matching escalators to cost drivers, to the extent possible, to mitigate over-forecasting risk. [174]

4.136 We do not consider the promotion of workable competition for the long-term benefit of end-users, as per s 166(2)(b), relevant to our draft decision on cost escalators.

Draft decisions - base capex allowance

4.137 This section outlines our draft decisions on the base capex allowance for Chorus for the PQP1 period.

4.138 Following our assessment of Chorus' proposal, our draft decision is to reduce the forecast base capex expenditure, based on our review of the following sub-categories and/or aspects of expenditure:

4.138.1 Excluding innovation expenditure that Chorus proposed as part of its Corporate and IT support expenditure category, based on our consideration of the matters set out in clause 3.7.12(3) of the capex IM (noting that Chorus may submit an individual capex proposal for this expenditure under clause 3.7.12(4));

4.138.2 Excluding the incentive payments included within base capex installations expenditure, based on our consideration of the matters set out in clause 3.7.12(3) of the capex IM (noting that Chorus may submit an individual capex proposal for this expenditure under clause 3.7.12(4), subject to any thresholds being met for an individual capex proposal in relation to incentive payments as set out in Attachment G);

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[173] Commerce Commission "Fibre input methodologies: Main final decisions – reasons paper" (13 October 2020), paragraph 7.16.3.

[174] Commerce Commission "Fibre input methodologies: Main final decisions – reasons paper" (13 October 2020), paragraph 7.16.2.

4.138.3 Updated connections demand forecast results in modest changes to installation expenditure, network aggregation, network transport, and field sustain expenditure;[175] and

4.138.4 Make an adjustment of 5%[176] to account for over forecasting, uncertainty within base year utilised within the modelling, and the lack of justification. This adjustment accounts for over forecasting, uncertainty within base year utilised within the modelling, and the lack of justification. We consider that this adjustment is likely closer to an efficient capex allowance, based on wider evidence. Our decisions relating to this adjustment across base capex is explained in paragraphs 4.167 to 4.170.

4.139 These changes result in a lower base capex allowance with an overall reduction of 16.6% as against Chorus' base capex proposal. If we assume Chorus submits individual capex proposals for the excluded capex, which meet the thresholds and are subsequently approved, the net reduction in the base capex allowance, relative to Chorus' base capex proposal, is 5.6%.

4.140 As noted previously, in making these draft decisions we have had regard to the assessment factors as are relevant when considering whether a capex proposal has met the expenditure objective.[177] The assessment factors help us identify the different aspects of prudence and efficiency that we consider relevant when evaluating capex proposals.

4.141 The assessment factors we have given particular regard to for our evaluation of Chorus' base capex proposal and targeted base capex sub-categories are:

	Assessment factors
c)	Historic capital expenditure and consideration of historic rates of investment.
d)	Quantitative or economic analysis related to the proposed capex, including sensitivity analysis and impact analysis undertaken.
e)	Approach to forecasting capital expenditure, including models used to develop the capital expenditure forecasts.
f)	Relevant financial information including evidence of efficiency improvements in proposed capex.
g)	Competition effects, including specific information for sub-categories of capital expenditure that have potential impacts on competition in PQ FFLAS and other telecommunications markets.
i)	Consideration and analysis of alternatives to the proposed capex, including the impact of the alternatives on PQ FFLAS quality outcomes.

[175] As has been noted above, should Chorus' actual connections volumes exceed forecast an adjustment will be made using the connection capex variable adjustment mechanism of the wash-up, as we have outlined in our reasons paper

[176] This amount is a Commission calculation based on assessment of available information.

[177] *Fibre Input Methodologies Determination 2020* [2020] NZCC 21, clause 3.8.6.

	Assessment factors
m)	Fibre asset and fibre network information.
o)	The extent of the uncertainty related to the: i) need for the proposed capex; ii) economic case justifying the proposed capex; and iii) timing of the proposed capex.
r)	The dependency and trade-off between the proposed capex and related operating expenditure to ensure least whole-of-life cost for managing assets and cost-efficient solutions.
s)	The accuracy and reliability of data.
t)	The reasonableness of the key assumptions, methodologies, planning and technical standards relied upon.

4.142 The sections below describe our evaluation of Chorus' base capex proposal in more detail. Our draft decisions for base capex are summarised in Attachment D.

Our assessment by sub-category

4.143 As described previously, we prioritised a more detailed assessment for eight out of the fifteen base capex expenditure sub-categories. The remaining seven sub-categories formed part of our overall top-down assessment and, as part of base capex, are subject to the efficiency adjustments we have applied to the proposed allowance.

4.144 The eight sub-categories that formed the priority list for detailed assessment are:

4.144.1 Complex Installations;

4.144.2 Standard Installations;

4.144.3 Corporate IT and Support;

4.144.4 IT and Support, Network & customers IT;

4.144.5 Network Capacity, Access;

4.144.6 Network Capacity, Aggregation;

4.144.7 Network Capacity, Transport; and

4.144.8 Network Sustain and Enhance, Field sustain.

4.145 Our assessment of these sub-categories is discussed further below.

Capital expenditure - Installation (complex and standard installations, $102m, 15.9% of proposed base capex)

4.146 **Draft decision:** Exclude $34.7m of incentive payments for existing connections from base capex. We consider that all incentive payments (both related to new and existing connections) would be better assessed as an individual capex proposal.[178]

4.147 Chorus has treated the base capex installation expenditure as a balancing item for its total installation costs, with the variable component for new connections included in the connection capex baseline proposal.

4.148 Following our evaluation, we have proposed to retain the installation expenditure proposed by Chorus, excluding the incentive payments for existing connections.

4.149 This is on the basis that we consider that the incentive payments should be ring-fenced and reported on separately (in accordance with capex IM clause 3.7.12(3)(c)(ii)). Chorus may then submit an individual capex proposal covering incentive payments (under clause 3.7.12(4)).[179]

4.150 We consider that assessing this proposed expenditure as an individual capex proposal at least partially mitigates the following risks to end users:

4.150.1 The prices they pay may be higher or lower depending on the level of the incentive payments, and on whether the incentive payments are successful in attracting and/or upselling end-users; and

4.150.2 Chorus over-states the level of incentive payments and/or that end-users pay for forecast incentive payments that are not made (e.g. Chorus simply pays the money as dividends).

4.151 Treating the proposed incentive payments as individual capex allows a greater degree of scrutiny to ensure the payments are not excessive, over-stated or anti-competitive, and requires Chorus to ring-fence and report on them separately. This is the substantive basis for excluding the proposed expenditure under base capex. We also do not consider that incentive payments meet the definition of variable connection capex so have excluded them from the determined connection capex baseline allowance.

[178] Subject to the thresholds being met for an individual capex proposal for retention incentives as set out in Attachment G.

[179] Subject to the thresholds being met for an individual capex proposal for retention incentives as set out in Attachment G.

4.152 Under clause 3.7.12(4), Chorus may submit an individual capex proposal instead covering incentive payments for new and existing connections. As noted above, Chorus may submit an individual capex proposal prior to (or during) the regulatory period.

4.153 Once we receive an individual capex proposal, we will then need to evaluate the incentive payments. Attachment G sets out some preliminary thresholds that need to be met for an individual capex proposal related to incentive payments. Chorus would need to provide information on the specifics of incentive payments to demonstrate that these preliminary thresholds are satisfied. Assuming these thresholds are met, Attachment G then sets out an indicative framework that we would envisage using for our evaluation, considering both s 162 and s 166(2)(b) of the Act.

Capital expenditure - IT and Support (Corporate and Network & Customer IT, $118.5m, 18.5% of proposed base capex)

4.154 **Draft decision:** Exclude $36m innovation expenditure from base capex and exclude $1m from Network and Customer IT base capex.

4.155 As a result of our assessment of IT and Support expenditure, we have decided to exclude $21.3m from opex for efficiency benefits that result from the proposed IT investments (refer to the opex allowance discussion below for more detail).

4.156 Chorus has proposed IT and Support expenditure that covers business IT, corporate, and network and customer. Based on the information provided by Chorus, in our view, there are several areas of uncertainty. These include:

4.156.1 Innovation expenditure of $36m has been incorporated into the proposal. The expenditure associated with innovation is highly uncertain and subject to considerable discretion. Furthermore, at this stage, we do not consider that the economic case for this expenditure has been made:

4.156.1.1 We consider there is a strong incentive (and therefore risk) for Chorus not to spend the capex and/or apply the required effort to make innovations succeed, since we will not monitor innovation expenditure under base capex, given its fungible nature. This is particularly true in an environment where Chorus is under pressure to pay dividends (so approved capex goes to dividends) and where the MAR may be lower than expected when the expenditure proposal was prepared (so there is less pressure to create additional revenue streams through innovation to hit the MAR);

4.156.1.2 Longer term innovation (what Chorus calls horizons 2 and 3) is by definition more speculative and higher risk, so we consider that individual capex is the more appropriate mechanism, rather than base capex; and

4.156.1.3 As such, we are proposing to exclude innovation expenditure from the base capex allowance, based on our consideration of the matters set out in clause 3.7.12(3) of the capex IM. Chorus may then submit an individual capex proposal for this expenditure (under clause 3.7.12(4) of the capex IM).

4.157 Chorus has proposed $76.2m on Network & Customer IT expenditure on systems and platforms across IT domains that support network or customer activities. These include product development, customer experience and optimisation, lifecycle and compliance.

4.158 We have broadly adopted Chorus' proposed Network & Customer IT expenditure. However, our draft decision is to reduce capex in this sub-category by $1m to reflect additions made to Chorus forecasts as five-year plan variances. The additions consist of:

4.158.1 Additional resource for additional workstreams (including new product development). We do not consider that it is justified to allocate all of this resource to FFLAS and consider a portion should be removed.

4.158.2 [Additional costs associated with moving activities on-shore rather than leaving them off-shore. The addition of costs means it is less efficient, and so the additional costs have been removed.]]

4.159 In relation to IT optimisation expenditure, many of the IT projects are unspecified over the PQP1 period and the expected benefits from such projects do not appear to be accounted for within the proposal. While the timeframes associated with PQP1 mean that detailed specification of many IT projects is impractical, and are likely subject to change, we consider that the investment should result in cost-out-benefits for Chorus. As such, we have not removed the associated IT expenditure from the base capex allowance, but instead included an opex efficiency adjustment of $21.3m. This is explained further in paragraphs 4.221 to 4.223.

Capital expenditure - Network Capacity - Access ($71.7m or 11.2% of proposed base capex)

4.160 **Draft decision:** Accept Chorus' proposed network access expenditure.

4.161 In our view, Chorus' proposed access capex appears to be justified. The expenditure is explained by lifecycle investment and asset replacement required within PQP1. None of the proposed investments are avoidable long term and all of them deliver long term benefits to customers.

Capital expenditure - Network Capacity - Aggregation and Transport ($96.2m, 15% of proposed base capex)

4.162 **Draft decision:** Exclude $2.7m of proposed aggregation capex and $2.4m of proposed transport capex from the base capex allowance.

4.163 While many of the model calculations appear appropriate, Chorus has provided very simplified models with hard coded inputs for aggregation and transport. Within Chorus' approach to forecasting there are many uncertainties that increase the margin of error. For example, the transport model does not demonstrate how traffic forecasts drive quantities. Without establishing a link between demand growth and quantities it is difficult to assess the proposed expenditure. In the absence of this information, we have made adjustments using assumptions. We also note that the design and scope of some projects have not been defined, and the cost is based on a broad estimate using previously implemented projects of a similar size.

Capital expenditure - Network Sustain and Enhance - Field sustain ($63.1m, 9.8% of proposed base capex)

4.164 **Draft decision:** Exclude $1.9m of proposed expenditure from the base capex allowance.

4.165 In a similar manner to network capacity aggregation and transport, Chorus has not provided sufficient information for an assessment of the justification of the expenditure. While the cost calculation appears to be appropriate, the input assumptions involve a great deal of uncertainty, which has not been adequately addressed within the proposal or supporting documents.

4.166 The minor adjustment has been derived from the consistent application of Chorus' own planning assumptions within the simplified models.

Base capex regulatory over-forecast adjustment

4.167 We have assessed Chorus' approach to applying 'regulatory overlays' and made some adjustments to Chorus' forecast allowances where we disagree with its changes or consider it has provided inadequate rationale to diverge from the five-year business plan.

4.168 Chorus includes in its five-year plan a substantial stretch efficiency target, along with an adjustment to reduce its capex to reflect delivery risk.

4.169 Chorus reversed the stretch efficiency reduction in the expenditure proposal and added it back into the expenditure forecast as a 5-year plan variance, while not accounting for any of the over forecasting in its proposal. These amounts total to at least 5% of the proposed capex. We consider that the reductions in the five-year plan are appropriate for PQP1. Our decision has been supported by an assessment for Chorus' track-record between historical forecasts and actual capex.

4.170 Therefore, we have proposed to make an overall adjustment to the base capex allowance of 5%[180] or $28.2m[181] of the proposed expenditure to reflect over-forecasts in Chorus' proposal.

Draft decision - connection capex baseline allowance

4.171 This section outlines our proposed draft decisions for baseline connection capex allowance for Chorus for the PQP1 period.

The assessment factors we considered in our evaluation of baseline connection capex

4.172 As noted previously, in making these draft decisions we have had regard to the assessment factors as are relevant when considering whether a capex proposal has met the expenditure objective.[182] The assessment factors help us identify the different aspects of prudence and efficiency that we consider relevant when evaluating capex proposals.

4.173 The assessment factors we have taken particular regard to for our evaluation of Chorus' connection capex baseline proposal are:

	Assessment factors
c)	Historic capital expenditure and consideration of historic rates of investment.
d)	Quantitative or economic analysis related to the proposed capex, including sensitivity analysis and impact analysis undertaken.
e)	Approach to forecasting capital expenditure, including models used to develop the capital expenditure forecasts.
f)	Relevant financial information including evidence of efficiency improvements in proposed capex.
g)	Competition effects, including specific information for sub-categories of capital expenditure that have potential impacts on competition in PQ FFLAS and other telecommunications markets.
i)	Consideration and analysis of alternatives to the proposed capex, including the impact of the alternatives on PQ FFLAS quality outcomes.

[180] This amount is a Commission calculation based on assessment of available information.

[181] This amount is a Commission calculation based on assessment of available information.

[182] *Fibre Input Methodologies Determination 2020* [2020] NZCC 21, clause 3.8.6.

m)	Fibre asset and fibre network information.
o)	The extent of the uncertainty related to the: i) need for proposed capex; ii) economic case justifying the proposed capex; and iii) timing of the proposed capex.
r)	The dependency and trade-off between the proposed capex and related operating expenditure to ensure least whole-of-life cost for managing assets and cost-efficient solutions.
s)	The accuracy and reliability of data
t)	The reasonableness of the key assumptions, methodologies, planning and technical standards relied upon.

Summary of our draft decisions for baseline connection capex

4.174 Following our evaluation of Chorus' proposal our draft decision is to reduce the connection capex baseline allowance by a total of $51.4m, based on changes to the following items:

4.174.1 A reduction of the forecast connection capex of $20.4m to reflect smoothed unit cost trends;

4.174.2 A reduction in the forecast volumes based on the updated demand forecast, resulting in a $21.8m (6.5%) reduction in the allowance (after the application of the smoothed unit costs); and

4.174.3 Removal of the incentive payments from the connection capex baseline allowance. We do not consider that incentive payments related to new connections meet the requirements for variable connection costs, as explained later in this section. Furthermore, we consider that all incentive payments (both related to new and existing connections) should be assessed as an individual capex proposal, as explained in base capex section.

4.175 Our determination of the connection capex baseline allowance includes approval or determination of the individual connection types proposed by Chorus. In its proposal, Chorus split connection capex into 10 connection types.

4.176 On the whole, we consider the proposed connection types appear to be appropriate. However, we consider that an additional connection type should be created by splitting one of the proposed types (connection type #2) into two connection types. The spread of unit costs within connection type 2 means we consider that the grouping of connections within proposed connection type 2 are not similar in cost. Consequently, the spread of costs within connection type 2 presents the potential for Chorus to game the incentives between installations within this group.

4.177 Our draft decision to split the proposed connection type 2 will not impact on the total connection capex baseline allowance. It will limit the extent to which Chorus may earn margin by gaming the allowance through incentivising the use of low-cost installation methods, while recovering a weighted average unit cost.

4.178 The sections below describe our evaluation of Chorus' connection capex baseline proposal in more detail. Our draft decisions for baseline connection capex are also summarised in Attachment E.

Our assessment by item

4.179 We have described the reasons for our proposed changes to the expenditure categories in more detail below. We cover:

4.179.1 Over forecast of unit costs; and

4.179.2 Retention capex (referred to as incentive payments).

Over forecast of unit costs

4.180 The forecast unit costs for connection appear to be subject to significant and unjustified fluctuations. The volatility in the proposed unit rates are not supported by Chorus' justification for the expenditure, and do not appear to have occurred historically. We also consider that such a volatility is unlikely to occur in practice. Accordingly, we have removed the unsupported volatility, which results in significantly lower rates than proposed by Chorus. Based on these factors, it appears that the unit costs may be overstated.

4.181 We have estimated the impact of the overstatement of the unit costs on PQP1 connection capex by smoothing the trends for unit costs. We have also accounted for the reduction in demand forecast by MBIE. The estimated impact is shown in the table below.

Table 1: Installation expenditure adjustments - unit cost and demand

Progressive adjustments	Impact on connections capex ($)	Impact on connections capex (%)
Smoothing unit cost trends	-20.4 million	-6.1%
Reduction in forecast installations	-21.8 million	-6.5%

Total	-42.2 million	-12.6%

Retention incentives capex (incentive payments)

4.182 **Proposed draft decision:** Exclude the proposed expenditure of $10.2m ($9.2m following adjustment to the demand forecast) for new connections incentive payments from the baseline connection capex allowance.

4.183 Chorus' expenditure proposal includes $9.2m of incentive payments for new connections, under baseline connection capex.

4.184 We consider that all incentive payments (both related to new and existing connections) should be assessed as an individual capex proposal. We explained our reasons for this draft decision in the base capex section (refer to paragraph 4.149).

4.185 We do not consider the new connections incentive payments meet the requirements for variable connection costs (i.e. meet the definition in the capex IM or the policy intent behind the baseline connection capex mechanism), since these incentive payments:

4.185.1 are not directly driven by demand, but rather by Chorus policies; and

4.185.2 do not vary with each new end-user connection, since there seem to be eligibility criteria which determine whether they apply in a particular instance.

4.186 Furthermore, there is a risk of over-recovery if these payments are included in baseline connection capex. This is because if the proposed new connection incentive payments are applied through the connection capex variable adjustment mechanism, they will become a fixed unit cost that Chorus recovers for every new connection. However, we understand that these payments would not necessarily be paid out for every new connection, but rather are subject to eligibility criteria that Retail Service Providers must meet. In other words, Chorus would recover an amount for every new connection and may not incur an actual cost for every new connection.

4.187 In its submission to our competition survey, Spark expressed concerned about the threat posed to competition from incentive payments acting as a form of market discipline against competing infrastructure.[183] We considered Spark's submission when deciding whether to accept Chorus' incentive payments as part of connection capex. Our decision to allow time for more scrutiny and to enable segregation of the spend is driven in part by this risk.

Reduction in forecast volumes

4.188 **Proposed draft decision:** Reduce the baseline connection capex in accordance with the alternative demand forecast.

4.189 As described previously, we consider that Chorus' demand forecast utilised in the baseline connection capex proposal does not reflect the reduced level of demand of MBIE's December 2020 forecast. Adjusting for this results in a reduction of $21.8m in the connection capex baseline allowance. We note that the connection capex variable adjustment will result in an adjustment in the connection capex baseline allowance to account for actual connection volumes over PQP1.

Specified connection types

4.190 We are required to specify the connection types that constitute the baseline connection capex allowance for PQP1. This includes:

4.190.1 A connection capex baseline allowance for each connection type by regulatory year in PQP1;

4.190.2 connection capex unit costs and any non-linear connection cost

4.190.3 functions, used to calculate the connection capex baseline allowance for each connection type; and

4.190.4 the forecast volumes, by connection type, used to calculate the connection capex baseline allowance for each regulatory year of the regulatory period.

As noted in paragraph 4.176, we have determined 11 connection types instead of the 10 proposed by Chorus in its baseline connection capex proposal.

183 Spark "Survey on Promoting competition in telecommunication markets as part of ID and PQ regulation" (25 February 2021).

Table 4.6 Our baseline connection capex allowance draft decisions by connection type

Connection type184	Grouped type	Volume			Unit costs (real)			Volume × unit cost (real)		
		2022	2023	2024	2022	2023	2024	2022	2023	2024
Type 1	Group 1	16,805	9,804	5,908	714	735	750	11,990,765	7,205,661	4,429,206
Type 2 **Type 3**	Group 2	62,465	35,191	18,658	1,184	1,206	1,225	73,935,086	42,439,791	22,851,305
Type 4 **Type 5** **Type 6** **Type 7**	Group 3	7,515	6,370	6,009	4,572	4,519	4,473	34,360,914	28,783,234	26,878,640
Type 8 **Type 9** **Type 11**	Group 4	79,480	45,595	25,266	74	89	105	5,854,059	4,062,722	2,650,485
Type 10	Group 5	2,196	2,342	2,470	2,545	2,647	2,753	5,588,362	6,198,144	6,798,397
Total										

Our approach to adjusting Connection capex allowances to reflect changes in connection volumes

4.191 The capex IM enables an adjustment to be made to the baseline connection capex allowance that reflects changes in Chorus' actual connection volumes during the regulatory period.

4.192 Chorus is required to submit to the Commission a connection capex annual report. The annual report must include the actual connection volumes for each connection type for each regulatory year of the regulatory period. The connection capex variable adjustment will be determined after the receipt of the last connection capex annual report for the regulatory period, by adjusting for the difference between actual connection volumes by connection type, and forecast connection volumes by connection type, at agreed unit costs, as per the connection capex baseline allowance determination.

[184] Note that connection type #2 proposed by Chorus was split into two separate connection types. These new connection types are represented by connection type 2 and connection type 3 respectively. The remaining connection types are the same (except where changes to the unit cost or volumes have been made) however the numbering has changed to reflect the additional types.

4.193 The connection capex variable adjustment mechanism will adjust Chorus' wash-up amount to reflect any changes in the actual number of connections during a regulatory period. The process for any adjustments to the allowable revenues as a result of the connection capex variable adjustment will be captured by our proposed wash-up mechanism.

Draft decision - proposed allowance for opex

4.194 This section outlines our draft decision on the opex allowance for Chorus for the PQP1 period.

4.195 Following our evaluation of Chorus' opex proposal, we are proposing to reduce the opex allowance, based on changes to the following items:

4.195.1 An adjustment to network maintenance to reflect historic trends and removal of the unjustified “pits and manholes” variance to the 5-year business plan;

4.195.2 A reduction in the corporate support expenditure; and

4.195.3 An efficiency adjustment to overall opex that reflects the expected efficiency improvements from IT capital investment.

4.196 We prioritised a more detailed assessment of four out of the eight opex expenditure sub-categories. The remaining four sub-categories formed part of our overall top-down assessment and, as part of the opex allowance, are subject to the efficiency adjustments we have applied to the opex allowance as a whole.

4.197 The four sub-categories that formed the priority list for detailed assessment are:

4.197.1 Product, Sales and Marketing;

4.197.2 Network Maintenance;

4.197.3 Network Operations; and

4.197.4 Corporate Support.

4.198 In addition, we also investigated Chorus' opex network operating costs.

4.199 As noted previously, in making these draft decisions, we have had regard to the assessment factors in the capex IM that are relevant to considering an opex proposal. The assessment factors help us identify the different aspects of prudence and efficiency that we consider are relevant. We consider the application of the relevant assessment factors enables us to ensure this decision meets the s 166(2) purposes, as discussed above at paragraphs 4.11 to 4.23.

4.200 The assessment factors we have taken particular regard to for our evaluation of Chorus' opex are:

Assessment factors
Historic operating expenditure and consideration of historic rates of expenditure.
Quantitative or economic analysis related to the proposed opex, including sensitivity analysis and impact analysis undertaken.
Approach to forecasting opex, including models used to develop the opex forecasts.
Relevant financial information including evidence of efficiency improvements in proposed opex.
Competition effects, including specific information for sub-categories of opex that have potential impacts on competition in PQ FFLAS and other telecommunications markets.
Fibre asset and fibre network information.
The extent of the uncertainty related to the: i) need for the proposed opex; ii) economic case justifying the proposed opex; and iii) timing of the proposed opex.
The dependency and trade-off between the proposed opex and related capital expenditure to ensure least whole-of-life cost for managing assets and cost-efficient solutions.
The accuracy and reliability of data.
The reasonableness of the key assumptions, methodologies, planning and technical standards relied upon.

4.201 The sections below describe our evaluation of Chorus' opex proposal in more detail. Our proposed draft decisions for opex are summarised in Attachment F.

4.202 We welcome stakeholder views on the results from our analysis and the corresponding draft decisions we have made.

Assessment of focus areas

4.203 Our more detailed assessment of the five sub-categories is discussed further below.

Operating expenditure - Product Sales and Marketing ($70.4m, 14% of proposed opex)

4.204 **Proposed draft decision:** Accept Chorus' proposed expenditure.

4.205 We have assessed Chorus' proposed product, Sales and Marketing expenditure. Our view is that the expenditure is justified.

4.206 The forecasts for this subcategory were evaluated with reference to the assessment criteria for historical trends, and the reasonableness of the assumptions. The proposed PQP1 allowance includes annual spend on innovation of [redacted]

4.207 There was a forecast increase in staff from 2020 to 2021 of approximately [redacted] The additional staff are primarily in the [redacted]. Apart from this change, expenditure in this area appears to be based on a business as usual scenario to support new products and an ongoing contractual obligation to promote fibre broadband.

4.208 We note that [redacted] has been included for innovation opex costs within product, sales and marketing expenditure. We consider that approving an amount of opex for innovation is consistent with our objective to promote s162(a) of the Act. As such our draft decision is to leave the innovation opex within the allowance.

Operational expenditure - Network Maintenance ($91.3m, 19% of proposed opex)

4.209 **Proposed draft decision:** Reduce Chorus' proposed expenditure by $9m for change in demand forecast.

4.210 As noted previously, there is a small impact as a result of the change to the demand forecast. The impact of the change in demand forecast is a reduction of [redacted] in network maintenance.

4.211 We have removed from Chorus' proposal, the nationwide remediation program for pits and manholes. We considered there was insufficient justification for the program. The impact on network maintenance from removing this program [[redacted].]]

Operational expenditure - Network Operations ($43.4m, 9% of proposed opex)

4.212 **Proposed draft decision:** Accept Chorus' proposed expenditure.

4.213 Chorus' network operations opex appears to be justified and follows historic expenditure trends.

Operational expenditure - Corporate Support ($144.6m, 30% of proposed opex)

4.214 **Proposed draft decision:** Reduce Chorus' proposed expenditure by $21.8 m to account for efficiencies and to remove unjustified spend.

4.215 Corporate support opex is the most material opex expenditure category. Expenditure has been forecast utilising a base-step-trend methodology. The base year utilised by Chorus is 2019. It appears that corporate support expenditure has been increasing in the years prior to PQP1 and then decreases over the period. Chorus has not provided an explanation for the reasonableness of the base year or the reasons for the increase. It is reasonable to expect a decline in business support costs in 2020 following completion of the bulk of the UFB build. However, significant increases in labour costs occur in at least two of the subcategories of corporate support opex for 2020, which have not been justified.

4.216 We also note that the forecasts have been prepared by individual finance managers within Chorus. As such inefficiencies are likely to exist within the base year and forecast expenditure.

4.217 If the unusually high 2020 and 2021 corporate opex expenditure is replaced with a continuation of the cost trend over 2017 – 2019 there will be a reduction in the PQP1 forecast of 12.8%. Accordingly, we have applied an efficiency reduction of 12.8% for Corporate support opex.

4.218 Chorus also included an additional increase to its self-insurance costs from its business plan process representing additional insurance costs for some assets not covered at the time of the compilation of the business plan. The increase to Corporate opex appears to be for Chorus' entire business. We have therefore reduced the additional increase for self-insurance to reflect appropriate allocations to PQ FFLAS.

Operational expenditure - Network Operating costs ($23.3m, 5% of proposed opex)

4.219 **Proposed draft decision:** Accept Chorus' proposed network operating expenditure.

4.220 Chorus' network operations opex appears to be justified and follows historic expenditure trends.

Opex efficiency adjustment

4.221 **Proposed draft decision:** Account for the expected efficiency improvements from IT capex investments by reducing opex by $21.3m.

4.222 In our view, there is considerable likelihood that Chorus has the opportunity to find additional efficiencies within its operating costs. As noted within the base capex section above, we consider that many of the unspecified IT projects will likely yield efficiency benefits over the PQP1 period. Chorus has not included the expected benefits from such projects within its proposal. We estimate the benefits from such projects are likely to be in the order of $21.3m based on Chorus' model for determining business benefits.

4.223 In its proposal, Chorus has included a net capex investment of $67.3 million to realise business benefits[185]. While there are many unknowns in estimating the benefits that will be realised, Chorus has provided a model that computes the expected opex benefits from this investment. This provides a useful profile of benefits arising from IT capex spend. Based on the Chorus model, opex reductions would be approximately $21.3m during PQP1, with additional benefits in subsequent years.

[185] This is the sum of Network and Customer IT plus Business IT net of IT lifecycle capex.

Chapter 5 Quality standards

Purpose and structure of this chapter

Purpose and structure of this chapter

5.1 The purpose of this chapter is to set out our draft decisions on quality standards for PQP1 and explain the reasons for our draft decisions. The chapter is structured as follows:

5.1.1 Summary of draft decisions on quality standards.

5.1.2 Application of our regulatory framework.

5.1.3 Key interactions.

5.1.4 Draft decisions on quality standards.

Table 5.1 Overview – draft decisions on quality standards

Draft decisions on quality	Proposed quality standard	Determination reference
Availability: average downtime Reporting differentiated by geography (POI Area)	Average unplanned downtime must not exceed, for a layer 1 aspect of a fibre network, 15 minutes in one or more calendar months in one or more POI area in each regulatory year.	Clause 8.1 Schedule 4
	Average unplanned downtime must not exceed, for a layer 2 aspect of a fibre network, 3 minutes in one or more calendar months in one or more POI area in each regulatory year.	Clause 8.2
	Downtime attributable to force majeure events and non-diverse transport services are excluded from standard.	Clause 4
Performance: port utilisation	For a calendar month, the percentage of ports experiencing port utilisation, upstream or downstream, equal to or above 90% in any five-minute interval in that calendar month, must not exceed 0.1%.	Clause 8.3 Schedule 4
Customer Service	None	
Ordering	None	
Provisioning	None	
Switching	None	
Faults	None	

Application of our regulatory framework

5.2 This section sets out the legal requirements and regulatory framework which underpin our draft decisions on quality standards in relation to PQ regulation. It explains how our draft decisions give effect to the statutory purpose in Part 6.

Requirements under the Act and the quality IM

Requirements under the Act

5.3 Paragraphs 2.43 and 2.44 of the regulatory framework chapter explains the purpose of PQ regulation, and our obligations and the timeframes to make PQ determinations.

5.4 We seek to meet the purpose of PQ regulation under s 192 by setting quality standards to ensure FFLAS that is subject to PQ regulation is provided to an appropriate level of quality.

5.5 Section 194(2)(c) states that a PQ path must specify the quality standards that must be met by a regulated provider. Section 194(4) also states that these quality standards may be prescribed in any way we consider appropriate (such as targets, bands, or formulae).

Requirements under the quality IM

5.6 The quality IM[186] specifies quality dimensions which underpin the PQ requirements. The quality IM sets out an exhaustive list of quality dimensions as well as a non-exhaustive list of example quality metrics.

5.7 The quality IM requires a PQ determination to specify quality standards for the mandatory quality dimensions of availability and performance. Additional quality standards may also be specified for the optional quality dimensions of ordering, provisioning, switching, faults, and customer service.

5.8 The quality IM also provides for a PQ determination to differentiate by regulated provider, geography, fibre network architecture, PQ FFLAS and classes of end user.[187]

5.9 In our IM reasons paper, we defined the following terms:[188]

5.9.1 **Quality Dimensions:** are defined in s 164 as measures of regulated FFLAS quality. We see these as measures encompassing the broad aspects of service quality. The Act requires us to include quality dimensions in the IMs, but the PQ and ID determinations will select the quality dimensions against which providers will be assessed.

[186] Commerce Commission "Fibre input methodologies main final decisions reasons paper" (13 October 2020), chapter 5.

[187] *Fibre Input Methodologies Determination 2020* [2020] NZCC 21, clause 3.6.3.

[188] Commerce Commission "Fibre input methodologies main final decisions reasons paper" (13 October 2020), paragraph 5.6.

5.9.2 **Quality metrics:** apply to PQ and ID regulation and describe what is being measured and provide more granularity to quality dimensions. We have included example quality metrics in the quality IM to increase certainty for regulated providers, access seekers and end-users, but the actual metrics will be selected as part of the PQ and ID processes.

5.9.3 **Quality standards:** are levels of quality that must be met by a regulated provider, which must be specified in their PQ path under s 194.

Economic incentives

5.10 In order to maximise profits in the presence of limited competition and a revenue cap, a PQ regulated provider may have an incentive to reduce expenditure as this can improve profitability under PQ regulation. This is desirable to the extent that costs can be reduced while maintaining an appropriate level of quality. However, a PQ regulated provider may have weakened incentives to grow, maintain and replace assets, potentially to the detriment of quality and therefore to the long-term benefit of end-users. Without effective competition, a PQ regulated provider may face weakened incentives to provide the quality that end-users demand.

5.11 Price quality regulation, alongside information disclosure regulation and declared services regulations, addresses this problem by incentivising regulated providers to appropriately maintain and replace assets, support service levels, connect access seekers and end-users in a timely manner, and facilitate network competition. Price quality regulation therefore aims to incentivise regulated providers to supply FFLAS in a manner that is consistent with outcomes produced in workably competitive markets.

5.12 In our view, the information asymmetry between us and regulated providers is likely to be higher in PQP1 than in subsequent regulatory periods. As a result, there may be a greater incentive in PQP1 (relative to subsequent periods) to degrade quality prior to the implementation date or to degrade quality in ways that are not directly observable. This incentive may be partially offset by the fact that PQP1 is relatively short (three years) before the price-path is reset as well as potential competition from other services.

5.13 We have considered the overall incentives regulated providers have to provide appropriate quality in PQP1 in making our draft decisions, and set quality standards that seek to prevent, and give us visibility of, FFLAS quality degradation.

Legal framework

5.14 Under s 166(2) of the Act, we must make determinations and decisions that we consider best give, or are likely to best give, effect:

5.14.1 to the purpose in s 162; and

5.14.2 to the extent that we consider it relevant, to the promotion of workable competition in telecommunications markets for the long-term benefit of end-users of telecommunications services.

5.15 The decisions about quality of FFLAS are constrained by the Act and the IMs but will primarily require an exercise of judgement.

5.16 Where our draft decisions require us to exercise judgement, we have explained why those decisions best give, or are likely to best give, effect to the s 166(2) purposes.

5.17 Where decisions do not require us to exercise judgement, we have not specifically explained those decisions by reference to the s 166(2) purposes. Rather, we have explained those decisions by referencing our specific obligations under the IMs or the Act.

5.18 We consider that our draft quality standard decisions meet the purpose of PQ regulation in s 192 by specifying quality standards that ensure FFLAS that is subject to PQ regulation is provided by regulated providers to a level of quality that best gives effect to the s 166(2) purposes.

Relevance and application of s 166(2) to our decisions

5.19 This section sets out how our draft decisions fit within the outcomes of s 162 and, where relevant, the promotion of workable competition in telecommunications markets for the long-term benefit of end-users of telecommunications services.

Relevance and application of s 162 to our decisions

5.20 We consider that all our draft decisions, together, give effect to the purpose outlined in s 162, and where relevant, the promotion of workable competition in telecommunications markets for the long-term benefit of end-users of telecommunications services. In particular, our draft decisions ensure regulated providers:

5.20.1 have incentives to innovate and to invest in network and service quality (s 162(a);

5.20.2 have incentives to improve efficiency and supply FFLAS of a quality that reflects end-user demands (s 162(b)); and

5.20.3 are limited in their ability to extract excessive profits (s 162(d)).

5.21 We consider the principal way our draft decisions will give effect to the s 162 purpose is by helping ensure that regulated providers "have incentives to…supply FFLAS of a quality that reflects end-user demands" as set out in s 162(b). We achieve this by incentivising compliance with, and penalising contraventions of, quality standards. Further, our PQ regulation can incentivise investment and innovation in line with s 162(a) by specifying the quality standards that must be met.

5.22 Fibre end-users make price-quality trade-offs when making decisions about which retail service is best for them, so we interpret "quality that reflects end-user demands" as "the quality that end-users are willing to pay for," since demand is generally linked to price. In setting PQ regulation, we assess the level of quality end-users demand and reflect this through minimum quality standards. As such, we propose quality standards based on our assessment of what level of quality end-users demand in the first instance.

5.23 Setting quality standards for the mandatory quality dimensions of performance and availability, alongside information disclosure regulation and declared services regulations, will help ensure PQ regulation provides additional incentives for regulated providers to deliver the quality we would expect to see in workably competitive markets.

5.24 We also consider that our draft decisions will play a role in giving effect to the s 162(d) purpose by helping ensure regulated providers "are limited in their ability to extract excessive profits". Our proposed quality standards help limit the incentives regulated providers may otherwise have to profit from underspending on network and service quality. We do not think our draft decisions have a direct role in promoting the outcomes described in s 162(c).

Relevance and application of s 166(2)(b) to our decisions

5.25 Regulated FFLAS (e.g. layer 1 services) may be used as inputs for other services (e.g. layer 2 services and above). Therefore, the quality standards we determine can help promote competition in other telecommunications markets by maintaining a level of quality where a regulated provider might have incentives to offer lower quality for FFLAS inputs into competing services (e.g. DFAS for fixed wireless services).

5.26 In making our draft decisions we have considered the promotion of workable competition in telecommunications markets for the long-term benefit of end-users of telecommunications services. However, we have not identified any reasons or implications that would require us to take a different approach to our draft decisions from the one which promotes the purposes of s 162 as outlined from paragraph 5.20 above.

Best practice principles

5.27 In the quality IM we committed to following best practice principles when applying the quality IM to PQ regulation.[189] We have considered and applied the following best practice principles in setting the quality standards:

5.27.1 **relevant:** to ensure PQ FFLAS service quality reflects end-user demands;

5.27.2 **measurable:** able to be measured by regulated providers;

5.27.3 **verifiable:** able to be checked or demonstrated to be true or accurate;

5.27.4 **controllable:** able to be controlled (at least to some extent) by regulated providers; and

5.27.5 **proportionate:** the benefits to access seekers or end-users justify the costs to regulated providers.

Key interactions

Quality standards and the revenue path

5.28 Quality regulation aims to mitigate the incentives of regulated providers to reduce expenditure at the expense of quality. We have a number of tools under Part 6 that work together to mitigate the risk of under-investment in the network.

5.29 Under revenue cap regulation, we set a revenue path which Chorus is able to outperform thereby earning additional profits. However, one way for Chorus to cut costs is to reduce investment and maintenance costs which may lead to poor consumer outcomes. Hence, we set a price-quality path which includes quality standards and may also include quality incentives in future regulatory periods.[190]

5.30 Quality standards act as a minimum level of quality and encourage investment in, and maintenance of, the network to not let quality degrade below a given level. Quality standards mitigate the broad expenditure incentives to let quality reduce below a certain level that we consider justifies an investigation into the quality outcomes and can result in legal action.

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[189] Commerce Commission "Fibre input methodologies: Main final decisions – reasons paper" (13 October 2020), paragraph 5.77.

[190] We have not proposed quality incentives under the price-quality path for the first regulatory period. We will assess the need for quality incentives in the next reset when we have more data from PQ1.

5.31 Section 194(3) also allows for a quality incentive scheme in addition to quality standards for the given quality metrics. A quality incentive scheme provides for additional/reduced revenue for changes in quality. In principle it provides a marginal incentive to adjust quality to the point where the marginal costs of adjustment equal the incentive set (which should ideally reflect consumer preferences).

5.32 Quality standards also apply alongside other regulatory requirements under Part 6, to provide quality incentives for Chorus. This includes the declared services, s 201 requirements, and information disclosure regulation, all discussed below.

Fibre market context

5.33 In setting our quality standards and applying the quality IMs, we have considered a range of market factors that we consider are relevant to the quality that Chorus delivers to consumers. These include:

5.33.1 the incentives Chorus has in relation to providing quality of service, and how these incentives might change in the face of increased competition in telecommunications markets;

5.33.2 the dynamic nature of the telecommunications industry, where technology and end-user demands change rapidly; and

5.33.3 the quality dimensions that can be controlled by regulated providers at least to some degree, as opposed to those that access seekers have more control over or are the result of a third party or external event. In the IM reasons paper, we stated, in determining the quality IM, that we had considered a fibre market that has had the benefit of Crown subsidies. We also stated that we expected to give the same consideration to setting quality standards under PQ regulation.[191]

5.34 Accordingly, in making our draft decisions, we have referenced a market that has a higher amount of fibre deployment and uptake, reflecting the benefit of Crown subsidies, compared to a fibre market that has not received a subsidy.

Information disclosure regulation

5.35 Our draft decisions for ID for quality performance measures reflect many of the current UFB contract service level requirements. This is because we consider that the UFB contracts form a useful starting point for quality performance measures under Part 6, as we transition into the new regulatory regime.

[191] Commerce Commission "Fibre input methodologies: Main final decisions – reasons paper" (13 October 2020), paragraph 5.65.

5.36 Quality performance measures under ID will provide incentives for regulated providers to continue to deliver appropriate levels of quality for FFLAS. We will monitor quality performance through ID reporting during PQP1 to determine whether additional or different quality standards are required for PQP2.

Declared services and s 201

Declared services

5.37 The regulatory framework chapter explains the declared services and the exposure draft of the initial anchor services and DFAS regulations.

5.38 Once declared, Chorus is required to provide those FFLAS in accordance with the terms and conditions and any price set out in the regulations.[192] This includes in accordance with the quality requirements prescribed by the regulations.

5.39 Clauses 14(3) and 15(3) of Schedule 1AA require that regulations prescribing a description of the declared services, or conditions of the declared services not be materially different from the terms set out in a UFB contract. Accordingly, the exposure draft for the declared services prescribe the current UFB service levels and default payments for failure to meet those service levels.

5.40 In our view, we must take account of specified quality-related service levels and associated default payments prescribed in the declared services when setting PQ quality standards. We have not specified standards that are set out in declared services, and instead we have reflected the network-level standards under the UFB contracts that would otherwise fall away post-implementation.

5.41 We note that there are consequences associated with breaching quality standards under Part 6 that are different to exceeding the declared service levels. As discussed, for this reason, we have set our proposed standards differently in some cases.

5.42 At a minimum, the quality standards we set must be consistent with the quality requirements for the declared services. We discuss how we have taken the declared services into account where we explain our draft decisions below.

[192] Sections 198-200.

Section 201

5.43 Section 201 also requires Chorus to set prices that are geographically consistent for FFLAS that are, in all material respects, the same. This requirement, combined with ID and applicable quality standards, restricts Chorus from offering more expensive or reduced quality services in different PQ geographies (for example rural vs urban areas). In making our draft decisions, we have taken into account the fact that Chorus is restricted in changing its pricing for the same FFLAS in areas where it provides PQ FFLAS.

Existing standards under UFB contracts

5.44 From the implementation date Chorus' supply of services currently governed by the UFB contracts (including pricing of those services) will, for the most part, cease and we will regulate PQ FFLAS quality in accordance with the provisions of Part 6.

5.45 In our IM reasons paper we said "we anticipate the quality service levels in the UFB contracts are likely to be a useful starting point for seeking stakeholder views in RP1."[193] In making our draft decisions, we have considered the quality standards under the UFB contracts as explained in our draft decisions below.

Fibre Deeds

5.46 The UFB initiative required that fibre providers who offered services that used networks developed (in whole or in part) with Crown funding give undertakings to the Crown. Under Chorus' fibre deeds, it is required to meet equivalence and non-discrimination obligations in relation to the supply of certain PQ FFLAS.

5.47 Non-discrimination obligations mean Chorus must not treat access seekers differently to one another, or differently to itself. Equivalence obligations mean Chorus must supply relevant PQ FFLAS to access seekers on the same basis that it supplies to itself.

5.48 The Chorus fibre deeds do not prescribe quality standards for FFLAS but the equivalence and non-discrimination obligations will promote a level of consistency of price and service quality across certain PQ FFLAS. We have set our mind to this when making our draft decisions.

Retail service quality (Part 7)

5.49 While Part 6 sets out the requirements for regulating FFLAS quality, we also have powers to regulate retail service quality, and telecommunications consumer matters more broadly, under Part 7.

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[193] Commerce Commission "Fibre input methodologies: Main final decisions – reasons paper" (13 October 2020), paragraph 5.155.

5.50 We said at paragraph 5.39 of our IM reasons paper that we consider the main interaction between Parts 6 and 7 will be on the aspects of service quality that affect fibre end-users and can be controlled,[194] to some extent, by the regulated provider. For example, the service quality that end-users perceive will be based on the end-to-end service experience. This may be made up of actions from the retailer as well as the regulated provider.

5.51 In setting our quality standards, we have considered what can be regulated under Part 7 to ensure our decisions are consistent and complementary and do not over-burden industry participants.

Lessons from Part 4

5.52 Under Part 4 quality regulation we have applied quality standards based on historical data (as a proxy for maintaining the level of service quality that consumers are used to), and using some statistical measure of standard deviation to reach a standard where we would expect the supplier to have a small probability of breaching in a given year.[195]

5.53 We have considered these factors in setting our proposed quality standards. For example, we have proposed a port utilisation standard based on historical data and average unplanned downtime based on existing UFB contract service level targets as well as historical data.

Draft decisions on quality standards

General approach

5.54 As explained from paragraph 2.7 of the regulatory framework chapter, the PQ determination applies to Chorus and to the PQ FFLAS it provides.

Part 6 regulatory requirements

5.55 We have considered the ID reporting requirements in respect of our specified quality metrics and performance measures. We consider these draft decisions as the right starting point for our draft decisions on PQ quality standards.

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[194] Commerce Commission "Fibre input methodologies: Main final decisions - reasons paper" (13 October 2020), paragraph 5.39.

[195] We generally consider an appropriate measure to be based on a reasonable number of observations such that it can help mitigate natural year-on-year variation and provide a statistically significant average and measure of variation. We also aim to include observations that are relevant to consumers at the time that we are setting quality standards and incentives. Longer sample periods may not be appropriate as they may incorporate the effects of performance historically where we had provided suppliers with allowances to resolve quality issues or where technology changes have led to improvements in quality.

5.56 In proposing our quality standards for PQP1, we have considered the regulatory requirements under Part 6 as a whole (including ID regulatory requirements, the declared services, and s 201). Accordingly, we do not consider:

5.56.1 it necessary to determine quality standards beyond those that we have specified for the mandatory quality dimensions for PQP1; and

5.56.2 it necessary to include revenue-linked incentives or compensation schemes for PQP1.

UFB contracts

5.57 In our IM reasons paper we said the "quality requirements in the UFB contracts assisted us in setting the quality IM dimensions and…they will provide a useful starting point for PQ and ID regulation."[196]

5.58 Consistent with our overall approach of creating a smooth transition to the new regime, we have applied a number of requirements from the UFB contracts to our draft decisions. As discussed more in relation to specific decisions below, these include:

5.58.1 using the same measures of availability (downtime) and performance (port utilisation) as applied under the UFB contracts;

5.58.2 defining port utilisation in a way that is consistent with the UFB contract requirements;

5.58.3 differentiating the standards in the same way; and

5.58.4 for availability, using the standards set under the UFB contracts as the starting point for our draft decision.

5.58.5 *Available information*

5.59 In our IMs reasons paper we said we would consider available information on the quality of regulated FFLAS currently or historically supplied by regulated providers.[197] In making our draft decisions we have had regard to current information disclosed by regulated providers under subpart 3 of Part 4AA (Services provided using networks developed with Crown funding: Undertakings regime and Commerce Act 1986 authorisations).

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[196] Commerce Commission "Fibre input methodologies: Main final decisions - reasons paper" (13 October 2020), paragraph 5.45.

[197] Commerce Commission "Fibre input methodologies: Main final decisions - reasons paper" (13 October 2020), paragraph 5.151.

5.60 On 11 December 2020, we issued notices under s 221 to regulated providers for quality information in relation to the UFB contracts and reporting capability plans and forecasts. We also made an informal request to Chorus for further and more recent historical data for its average downtime and port utilisation (together, Chorus information requests).

5.61 In our IM reasons paper we also said we intended to seek views from interested parties, such as regulated providers and access seekers, and we may hold a technical workshop.[198] We held a technical workshop on current fibre industry practices on 26 February 2021 (February workshop) where stakeholders were able to discuss and seek clarification on the requirements for PQ regulation.

5.62 In our IM reasons paper we said that, in setting PQ standards, we may also be informed by Chorus' PQ expenditure proposals.[199] In making our draft decisions we have considered Chorus' PQ expenditure proposal including relevant published plans and forecasts in relation to quality, such as those set out in Chorus' paper titled "Our fibre plan 2020."

5.63 In making our draft decisions we have had regard to available information, as discussed in more detail below.

Process and approach paper and quality IM

5.64 In making our draft decisions we have taken into account our process and approach paper and the quality IM. We reference these, where relevant, when explaining the reasons for our draft decisions.

Draft decisions on optional quality dimensions

Draft decisions

5.65 We have not proposed quality standards for any of the optional quality dimensions provided for in the IMs, these are:

5.65.1 faults;

5.65.2 ordering;

5.65.3 provisioning;

5.65.4 switching; and

[198] Commerce Commission "Fibre input methodologies: Main final decisions – reasons paper" (13 October 2020), paragraph 5.150.

[199] Ibid.

5.65.5 customer service.

Reasons

5.66 Given the serious enforcement consequences of a breach of a quality standard, we do not consider that it is proportionate to impose quality standards for the optional quality dimensions at this stage.

Provisioning, faults, and customer service

5.67 We have not proposed quality standards for the provisioning, faults, and customer service quality dimension. The exposure draft for the declared services also include ancillary (or service level target reporting metrics) for these, which should provide incentives to continue to deliver appropriate FFLAS quality for anchor services and DFAS. Market-based incentives such as competition from FWA providers means there are already sufficiently strong incentives in these dimensions.

5.68 As discussed above, we consider there are sufficient other price-quality regulatory tools in place, such as the declared services and s 201, that should provide additional incentives on Chorus to deliver and 'anchor' FFLAS quality, including in respect of the optional quality dimensions for which we do not propose specifying quality standards.

5.69 However, we have proposed quality metrics and performance measures for provisioning, faults, availability, performance, and customer service under ID regulation. This will provide adequate visibility of Chorus PQ FFLAS performance and increased incentives for Chorus to maintain PQ FFLAS quality, as explained in our ID reasons paper.

5.70 Finally, we note that faults are implicitly included in the 'average downtime' metric for our proposed availability standard.

Ordering and switching

5.71 We have not proposed quality reporting measures for ordering and switching in our draft ID decision. As such, it is not appropriate to specify enforceable quality standards under PQ either.

5.72 We have not seen sufficient evidence that ordering, and switching are important to the purpose of PQ regulation at this stage. Stakeholders discussed the number of FFLAS orders at the February workshop, but we are not aware of strong reasons to include quality standards for these quality dimensions. We also note that switching is covered by the TCF Customer Transfer Code.

5.73 For the reasons set out above, having regard to the legal framework from paragraph 5.14, we consider our draft decisions on the optional dimensions best give effect to the purposes of ss 166(2) and 192.

Draft decisions on availability quality standard

Draft decisions

Quality standard

5.74 For the availability quality dimension, we have determined an "average unplanned downtime" metric with the following quality standards:

5.74.1 the average unplanned downtime for layer 1 must not exceed 15 minutes in one or more calendar months in one of more POI areas in a regulatory year; and

5.74.2 the average unplanned downtime for layer 2 must not exceed 3 minutes in one or more calendar months in one of more POI areas in a regulatory year.

Calculation of the availability quality standard

5.75 'Average unplanned downtime' for a calendar month in a **POI area** is calculated in accordance with the following formula:

$$\frac{\sum NUD}{ANAC}$$

where—

NUD	means **net unplanned downtime** for that calendar month in that **POI area**; and
$ANAC$	means **average number of connections** for that calendar month in that **POI area**.

5.76 For unplanned downtime, fault, as defined in the quality IM means:

5.76.1 (i) an unplanned outage in PQ FFLAS; or

5.76.2 (ii) a reduction in the performance of PQ FFLAS below any levels specified in a PQ determination.

5.77 For the purposes of (ii) we are specifying the level as a port utilisation of equal to or greater than 90%.

Exclusions from the standard

5.78 Unplanned downtime attributed to force majeure events are excluded from the availability quality standard. Force Majeure events include:

5.78.1 fire, floods, storms, tempest, earthquake or other act of God;

5.78.2 any act of a public enemy, war, riot, act of civil or military authority;

5.78.3 nuclear, chemical or biological contamination; and

5.78.4 any act of a third party (not being an employee, agent or subcontractor of that party) engaged in subversive or terrorist activity or sabotage.

5.79 Unplanned downtime caused by faults to non-diverse transport services are also excluded from the availability quality standard.

Differentiation

5.80 As noted above, we have set two separate standards for layer 1 and layer 2 downtime. Within these standards, we also differentiate by POI area.

5.81 POI areas are UFB geographic areas listed in the Notice of points of interconnection under section 231 of the Telecommunications Act 2001 issued by the Commission on 19 December 2019.

Reasons

Separate standards by layer

5.82 In our view, separate availability quality standards for layer 1 and layer 2 recognises that layers of the network perform differently and are susceptible to different levels and types of disruption. For example, layer 1 is more susceptible to cable cuts (that take longer to resolve) whereas layer 2 is more susceptible to equipment related issues (that take less time to resolve).

5.83 We have therefore specified different availability quality standards for layer 1 and layer 2 as set out above. This will ensure a minimum level of quality at each layer and incentivise Chorus to make sufficient investments in layer 1 and layer 2 services respectively.

5.84 We have used the service levels in the UFB contracts as a starting point for our proposed availability quality standards.[200] We have applied this annual approach to account for differences in the structure of the UFB contractual standards (which worked on a 'rolling' basis) and our PQ standards (where we consider an 'annual' approach appropriate). These levels have been in place for the duration of the UFB contracts and have associated service default payments, so we presume that the network has been built to meet these standards.

[200] The UFB contract availability service levels are 120 minutes (annualised) for layer 1 and 30 minutes for layer 2. This translates to monthly standards of 10 minutes for layer 1 and 2.5 minutes for layer 2.

Level of the standards

5.85 We have used the service levels under the UFB contracts as a starting point in setting the proposed quality standards. We assume that the network has been built to this level and therefore we have considered whether the UFB level should be adjusted for Part 6 after analysing Chorus' historical performance.

5.86 For layer 1, we have proposed to set a standard of 15 minutes per calendar month. This standard is based on:

5.86.1 the UFB contractual level of 10 minutes (converted from annual to monthly); plus

5.86.2 an additional 'buffer' of 5 minutes.

5.87 We have proposed including this additional 5 minutes to account for:

5.87.1 the greater enforcement consequences and uncertainty that result from a breach of a Part 6 quality standard compared with the UFB contractual mechanisms;

5.87.2 to reduce the probability of unnecessary breaches (ones which do not reflect declines in underlying service performance, but instead random variation in performance);

5.87.3 our estimated probability that Chorus exceeds the standard level over a given year or three-year regulatory period; and

5.87.4 to allow for expected greater variability between POI areas.

5.88 The 5-minute buffer for the layer 1 standard has been informed by using two standard deviations of the monthly average unplanned downtime across all POI areas (approximately 2 minutes). This is similar to our approach in Part 4, but instead of using the mean historical average as the target level, we use the monthly UFB contract level and add the 5-minute buffer reflecting average variability.[201]

5.89 For layer 2, we have proposed to set a standard of 3 minutes per calendar month. This standard is based on:

5.89.1 the UFB contractual level of 2.5 minutes (converted from annual to monthly); plus

5.89.2 an additional 'buffer' of 0.5 minutes.

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[201] Under Part 4 we generally use the historical mean and allow two standard deviations when setting the quality standard level.

5.90 We have proposed to include the 0.5-minute buffer for layer 2 based on:

5.90.1 the greater enforcement consequences and uncertainty that result from a breach of a Part 6 quality standard compared with the UFB contractual mechanisms; and

5.90.2 to reduce the probability of unnecessary breaches (ones which do not reflect declines in underlying service performance, but instead random variation in performance).

5.91 The 0.5-minute buffer for the layer 2 standard has been calculated using two standard deviations of the monthly average unplanned downtime across all POI areas (approximately 0.25 minutes).

5.92 We consider the service levels under the UFB contracts (ie, 10 minutes for layer 1 and 2.5 minutes for layer 2) to be 'target' levels for PQP1 but the quality standard levels under Part 6 for enforcement purposes to be 15 minutes for layer 1 and 3 minutes for layer 2.

5.93 The quality standards we set under Part 6 carry more serious consequences for a breach compared with default payments under the UFB contracts. Therefore, we see the proposed buffer on the availability standards as necessary to reduce the chances of quality standard exceedances that do not warrant investigation and enforcement action.

5.94 While the standard we have proposed is measured at a POI area level (the standard is breached if the downtime threshold is breached in a POI area), there is only a single standard per year per layer. Put another way, Chorus will only be able to breach each standard (layer 1 and layer 2) once per year.

5.95 We will account for the number of POI areas or months in which the threshold is exceeded as a matter of enforcement discretion.

5.96 The proposed 15-minute (for layer 1) and 3 minute (for layer 2) standards are the same in all POI areas. This means that quality outcomes across the network should be above a minimum level of availability regardless of which POI area PQ FFLAS is provided to.

5.97 We have proposed measuring and applying the average downtime standard for each month (ie, the average downtime is measured each calendar month and the standard can be exceeded in each month). We consider that it is important to capture extreme events (within Chorus's reasonable control) that occur within a month that are in exceedance of our proposed standard levels.

5.98 Chorus' PQ expenditure proposal suggested monthly reporting with annualising of the values (ie, multiplying the monthly unplanned average downtime by 12):[202]

> Monthly reporting provides visibility of within-year trends, while annualising the figures makes them more relatable.

5.99 We have proposed not to annualise the monthly amounts in measuring and applying the availability standards. We consider that our monthly availability standards can be annualised (multiplied by 12) to be more relatable and comparable with Chorus' existing measures, for example.

5.100 If the availability standards were measured at an annual level, rather than monthly, for example, then these extreme events within a month may be missed through averaging across the period. These events can cause consumer harm so we consider that they would generally warrant investigation if they are exceeding these levels. In addition, to perform statistical analysis that is robust we need a sufficiently large sample size. If we were to use an annual measure, there would only be two full years of average downtime data available which would not result in any robust analysis.

5.101 Having standards that apply across POI areas and are measured monthly means that Chorus has many more opportunities to exceed the layer 1 and layer 2 availability quality standards compared with an annual measure or quality standard aggregated across all POI areas. We have taken this into account in setting our standard levels so that there is not a significantly high likelihood that it will breach over the three-year regulatory period (assuming underlying levels of performance are maintained).

5.102 We propose that the average unplanned downtime apply across a fixed regulatory year rather than a rolling period (such as is included in the UFB contracts). In reaching our draft decision we considered that:

5.102.1 although a rolling standard may be slightly more theoretically appealing, it can introduce complexity in enforcement and uncertainty around timing of subsequent breaches of the standard;

5.102.2 for the first regulatory period it is important that all parties have certainty around how the standards are applied and implemented for compliance purposes; and

5.102.3 our enforcement discretion can be applied if there were a scenario where there were multiple (possibly related) exceedances that cross regulatory years.

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[202] Chorus "Our Fibre Plans" (12 February 2021), page 56.

5.103 We propose that for PQP1 there should only be one possible contravention of the quality standards per service layer per regulatory year. That is, even if there are multiple exceedances in a given regulatory year this will only constitute one quality standard breach. If there are widespread or repeated exceedances of the standards in a given regulatory year, we will take this into account in our enforcement discretion and can consider further quality performance measures or quality standards if availability is causing harm to end-users.

5.104 We set out below two figures showing average downtime that have informed our draft decisions. The figures are based on available information and from Chorus' reports and proposals.

5.105 The historical average downtime data displayed in Figure 5.1 and Figure 5.2 below shows a constant reduction in average downtime at both layer 1 and layer 2 averaged across the fibre network. We attribute this improvement to the refinement and improvement in processes and to the fact that the fibre network is now built. Now that the build has been completed, Chorus has transitioned from build to operate, which we anticipate will result in more stable levels of performance.

Figure 5.1 Chorus Layer 1 annualised average unplanned downtime (across all POI areas)

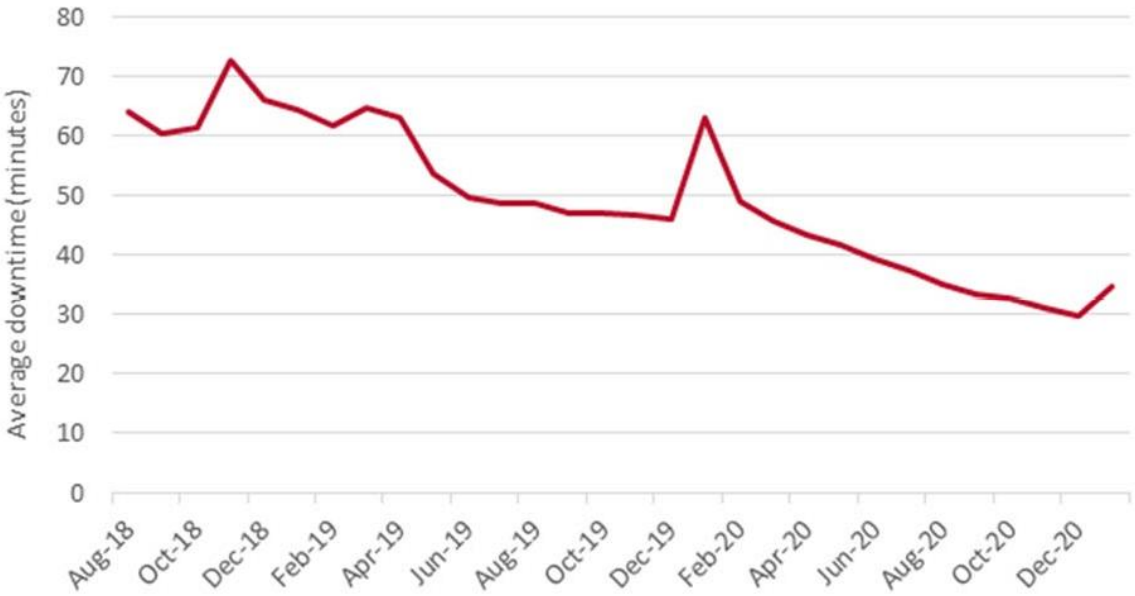

Figure 5.2 Chorus Layer 2 annualised average unplanned downtime (across all POI areas)

5.106 Please note that Figures 5.1 and 5.2 use Chorus data from its service level reporting under the UFB contracts which is based on a rolling average which is reset when a service level breach occurs under the UFB contracts.

5.107 We can approximate the probability that Chorus exceeds at least one POI area quality standard in a given month assuming the underlying level of performance remains static (see Table 5.2 below). This requires analysing the distribution of downtime minutes at layer 1 and layer 2 for each month and estimating the average probability of breaching for different standard levels.

5.108 Table 5.2 below displays our estimated probabilities of exceeding at varying availability standard levels (assuming the underlying distribution of monthly performance remains static over PQP1). The analysis is based on data taken from historical information and Chorus' reports and proposals.[203]

[203] The historical data are annualised unplanned average downtime values which we have used in the analysis. We can infer the results for monthly values from these.

Table 5.2 Approximate probability of exceeding the standard level in at least one POI[204]

Layer	Standard level	Probability of exceeding at least one POI over 12-month period	Probability of exceeding at least one POI over reg period (3 years)
Layer 1	>120 mins annualised (10 mins monthly)	14%	37%
	>150 mins annualised (12.5 mins monthly)	6%	17%
	>180 mins annualised (15 mins monthly)	2.5%	7%
Layer 2	>20 mins annualised (1.7 mins monthly)	5%	14%
	>30 mins annualised (2.5 mins annualised)	1.6%	5%
	>36 mins annualised (3 mins annualised)	1.0%	2.8%

5.109 We can use these approximate probabilities to get an idea of how proportionate the quality standards are likely to be. We do not want a standard level that is likely to have multiple unjustified exceedances during a regulatory period. Such a standard may trigger over-investment in improvements in quality that are not justified (reducing efficiency and raising prices for end-users).

5.110 At the same time, we do not want to have such a relaxed standard that it would not identify genuine declines in performance, and hence have only limited quality incentive effects (s 162(b)).

5.111 For context, the quality standards for electricity distributors have generally been set two standard deviations from the historical average. Theoretically this gives a probability of exceeding the standard in a given year of 2.5%. Therefore, the theoretical probability of an electricity distributor exceeding during a regulatory period is around 12% (for a five-year period).

[204] We note that there were some significant layer 1 exceedances of the UFB contract service levels in late 2020 and early 2021 which have had a large impact on the probabilities, but these are the events that we are trying to capture in this analysis. There have been no historical exceedances of the UFB contract service levels at layer 2 from the data that we have received. This analysis requires normally distributed data to infer probabilities of exceedances. We have used a log-transformation approach to make the monthly downtime distributions closer to being normally distributed, which improves our approximation of the probabilities.

5.112 Finally, we note that there is a link between quality outcomes and expenditure that we allow Chorus to recover over the PQ period. Chorus has not proposed significant expenditure with the intent to improve quality standards from current or historical levels.[205] Therefore, any tightening of the standards from the UFB contracts may require additional expenditure and could result in higher costs for end-users.

Exclusion of force majeure events

5.113 Chorus should only be exposed to enforcement action and potential statutory penalties if a breach of the quality standard is due to its own behaviour and not caused by a significant event beyond its reasonable control. Were we to include these 'force majeure' events within the standard, it may result in unnecessary investigation and dilute the effectiveness of quality standards.

5.114 Under Part 4, when setting similar standards for electricity distribution businesses,[206] we have applied a statistical "normalisation" methodology to achieve a similar outcome. Such an approach may also be appropriate for fibre providers.[207] However, that method requires a long data series (five or more years, in the context of relatively static networks) to be statistically robust.

5.115 Instead of applying normalisation, we have excluded certain events based on cause. There is an 'extreme event standard' to deal with extreme one-off events that have a significant impact on quality of service.[208] Consistent with treatment under Part 4, we consider that normalisation for extreme events should also be applicable to the quality standards in the PQ path for Chorus.[209]

5.116 We have applied the definition for 'force majeure' from the UFB contracts. We consider that the list of events it captures, and the exclusions for events within Chorus' control are appropriate. It is an industry measure that parties have been operating under for the duration of the UFB initiative.

5.117 We have assumed that the historic data we have based our standards on (data that was collected under the UFB contractual regime) applied this definition. As such, the forward-looking standards should be consistent with this historic data.

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[205] For example, in its PQP1 'Our Fibre Plans' Chorus notes its aim to hold performance broadly steady with historical levels across PQP1. See Chorus "Our Fibre Plans" (12 February 2021), p. 57.

[206] The 'reliability' standard applied in that case was measured as a system average index of the duration of interruptions. Though expressed differently, this measures the same thing as our proposed average unplanned downtime'.

[207] Commerce Commission "Default price quality paths for electricity distribution businesses from 1 April 2020, Final decision Reasons paper, 27 November 2019

[208] Commerce Commission "Default price quality paths for electricity distribution businesses from 1 April 2020, Final decision Reasons paper, 27 November 2019, p139.

[209] An example of an event qualifying as an extreme event would be the Christchurch earthquake.

Exclusion of faults to non-diverse transport services

5.118 We have proposed that faults to non-diverse transport services do not count towards average unplanned downtime.

5.119 This approach is consistent with the approach in the UFB contracts. We have done this for two reasons:

5.119.1 further investment in additional redundancy would need to be considered alongside the costs of doing so – we do not consider this appropriate for the first, transitional reset; and

5.119.2 as with force majeure events, to set a proportionate standard using historical data that applies a particular way of measuring standards, the standard should be designed consistently.

5.120 For the reasons set out above, having regard to the legal framework from paragraph 5.14, we consider our draft decisions on the availability quality standard best give effect to the purposes of ss 166(2) and 192.

Draft decisions on performance quality standard

Draft decisions

Quality standard

5.121 For the performance quality dimension, we have determined a 'port utilisation' metric with the following quality standard:[210]

5.121.1 For the performance quality standard applying for a regulatory year, the percentage of Chorus' ports experiencing port utilisation, upstream or downstream, equal to or exceeding 90% in any five-minute interval in one or more calendar months, must not exceed 0.1%.

Calculation of the performance standard

5.122 'Port utilisation' is calculated as a percentage figure in accordance with the following formula:

$$\frac{octets \times 8}{5 \times 60 \ seconds \times PS} \times 100$$

where—

octets means the number of **octets** at a **port**, being the greater of the **inOctets** or the **outOctets**, measured over the 5-minute

[210] "Port" means all physical, virtual and sub-interfaces for the exchange of traffic and excludes UNI, E-NNI and PON ports.

	interval in accordance with **RFC 2863**, and includes framing characters, but excludes Ethernet preamble, start from delimiter, and interpacket gaps; and
PS	means **port** speed and is measured in **bps**.

5.123 Port utilisation measurement includes all physical, virtual and sub-interfaces within the physical ports that are within the regulated provider's network (these exclude UNI, ENNI and PON ports).

Differentiation

5.124 We have not specified differentiating the performance quality standard.

Reasons

5.125 We have based our performance quality standard on available information including Chorus' reports and proposals. In its expenditure proposal, Chorus indicated that 90% is the appropriate threshold as a timely indicator of network stress and more meaningful than other methods of measurement.[211]

5.126 We consider this creates meaningful incentives for Chorus to continue investing in network capacity, consistent with s 162(a), in addition to promoting incentives for Chorus to continue to deliver service at a level of quality that meets end-user demand.

5.127 Chorus uses a traffic light system to highlight network planning for port utilisation.[212] The threshold of 90% is where Chorus considers end-users may start to notice reduction in performance. We agree that this is an appropriate level.

5.128 In our view, if a port reaches 90% utilisation, then investment is needed to upgrade infrastructure. It therefore follows that a very low percentage of ports should ever reach or exceed this level.

5.129 We have proposed measuring the port utilisation equal to or above 90% each month. We consider that it is important to capture extreme events that occur within a month that are in exceedance of our proposed standard level.

[211] Chorus' expenditure proposal overview document, Chapter 5, Our Fibre Plans, 2020, page 52.

[212] Chorus - Congestion Free Networks White Paper, September 2016, page 7.

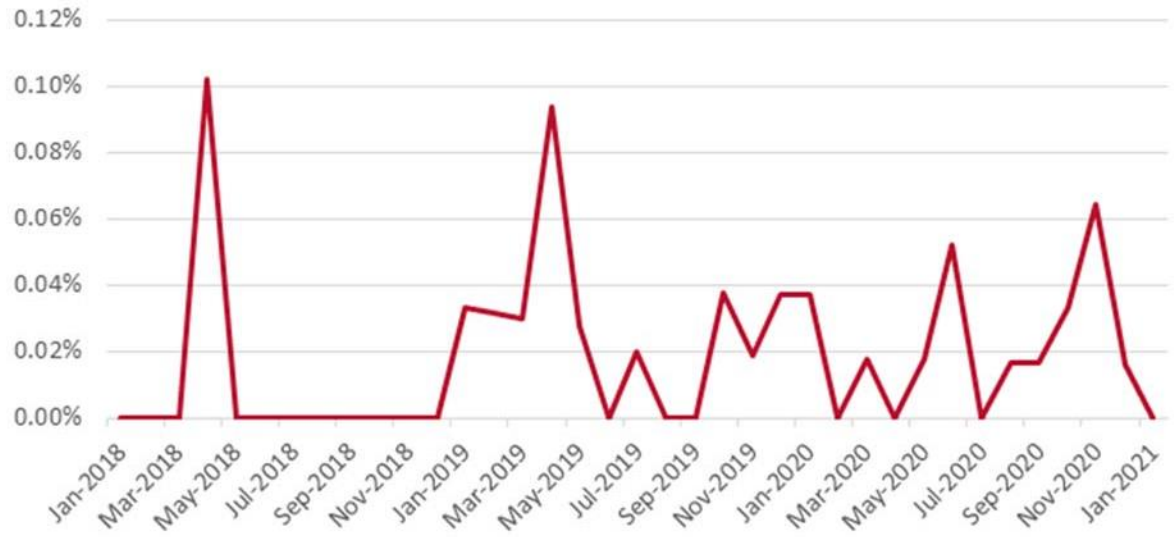
5.130 We propose that, consistent with the availability standards, for PQP1 there can be a maximum of one possible contravention of the quality standard per regulatory year. That is, even if there are multiple monthly exceedances in a given regulatory year, this will only constitute one quality standard breach. If there are widespread or repeated exceedances of the standards in a given regulatory year, we will take this into account in our enforcement discretion and can consider further quality performance measures or quality standards if it is causing harm to end-users. This approach is consistent with the approach under UFB contracts.

5.131 The performance quality standard is aggregated across the fibre network. This will pick up any significant utilisation at or above 90% in a POI area and will contribute to the overall proportion. Although there will not be standards in each POI area, we will be able to see this through the ID disclosures, which prescribes a performance metric and measure differentiated by geography (by POI area).

5.132 This is supported in Chorus' expenditure proposal document where it states that aggregation of network port utilisation is where it has the best baseline data. This is also supposed by its reporting against the UFB contracts.[213]

5.133 Figure 5.3 shows data based on Chorus' historical port utilisation performance. The figure is based on available information and from Chorus' reports and proposals. As previously noted, this analyses the number of INNI and network ports with utilisation equal to or above 90%.

Figure 5.3 Chorus aggregated port utilisation ≥ 90%



[213] Chorus' expenditure proposal overview document, Chapter 5, Our Fibre Plans, 2020, page 52.

5.134 Chorus has stated that historic data shows that it has never exceeded 0.2% of ports equal to or above 90% utilisation.[214]

5.135 Generally, we use a historical average and some statistical measure of variation to set quality standards. This is based on an assumption of normally distributed data. However, for port utilisation, the data does not exhibit a normal distribution (that is, it has significant positive skewness) [215] and so we cannot apply the usual standard deviation approach to set a standard.

5.136 Therefore, we have proposed a quality standard of 0.10% measured each month aggregated across the fibre network. This standard level is significantly above the mean and median values of the historical data (0.019% and 0.016% respectively) and takes into account the potentially long-tailed nature of the measure. We would expect that only in extreme circumstances would Chorus exceed this level in a given month which we consider would warrant investigation.

Measurement and calculation of the standard

5.137 We have specified a port utilisation calculation to ensure that the measure is applied and assessed consistently over the price-path, and across PQ and ID regulation. If we did not specify a method of calculation, there could be incentives to vary the calculation methodology to enhance reported performance.

5.138 We consider our calculation of port utilisation is in accordance with standard industry practice. We based the calculation on calculations from CIP's UFB performance management and reporting document which we understand is applied in practice by Chorus.[216]

5.139 We have based our performance quality standard on port utilisation equal to or above 90%. This is the threshold where Chorus considers end-users may start to notice a reduction in performance. We consider that if a port reaches 90% utilisation then end-users may be impacted, and investment is needed to upgrade infrastructure.

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[214] We note that Figure 5.4 in Chorus' 'Our Fibre Plans' document appears slightly different to our port utilisation data in Figure 5.3 above. We suspect that this is due to use of different ports or updated information. See Chorus' expenditure proposal overview document, Chapter 5, Our Fibre Plans, 2020, page 52, 53.

[215] Positive skewness means that the data is skewed to one side. A majority of the observations in the data are zero with a 'long tail' of a small number of observations with a high proportion of port utilisation above 90%. Data with a normal distribution has a skewness of zero as the data (in a bell curve) is symmetrical around the mean.

[216] Crown Infrastructure Partners "UFB Performance Management and Reporting" (June 2017).

5.140 We have therefore proposed a quality standard to apply to the proportion of ports equal to or above 90% utilisation to ensure a minimum level of quality for end-users and to incentivise investment where required to maintain performance.

5.141 For the reasons set out above, having regard to the legal framework from paragraph 5.14, we consider our draft decisions on the performance quality standard best give effect to the purposes of ss 166(2) and 192.

Draft decision on incentives and compensation schemes

Draft decision

5.142 A price-quality path may include penalties and rewards, and compensation schemes.[217]

5.143 Our draft decision is not to implement a revenue-linked incentive (reward or penalty) or compensation scheme for PQP1.

Reasons

5.144 In our view, our proposed quality standards provide adequate incentives for Chorus to maintain an appropriate level of quality in its supply of FFLAS for PQP1.

5.145 As set out in paragraph 5.56 above, in making our draft decisions, we considered the regulatory requirements under Part 6 as a whole, including ID requirements, the declared services and s 201. For example, the exposure draft for the declared services includes compensation to access seekers for missed service levels for provisioning and faults. It is also possible that Chorus' other wholesale service agreements for its other FFLAS may also include service levels that provide such incentives for Chorus. Accordingly, we have not specified revenue-linked incentives (rewards or penalties) or compensation in respect of our proposed quality standards.

5.146 Additionally, we consider imposing an incentive in the absence of clear information about the value end-users place on a given level of service quality runs the risk of creating significant perverse incentives if the incentive rate is set too high or too low.

5.147 For the reasons set out above, having regard to the legal framework from paragraph 5.14, we consider our draft decisions on the incentives and compensation schemes best give effect to the purposes of ss 166(2) and 192.

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[217] Sections 194(3)(a), (b) and (c).

Draft decisions on reporting and compliance

Draft decisions

Compliance reporting

5.148 We propose that Chorus must report on all quality standards at the end of each regulatory year.[218]

Breach reporting

5.149 Where any quality standard is breached, Chorus would also have to publish a breach report in respect of all exceedances of the quality standards during that year. The report must contain an explanation of the breach, including the cause and action taken to remedy the breach.

Reasons

Compliance reporting

5.150 We consider that annual reporting of the information necessary to assess compliance adequately balances our need to monitor compliance in a timely manner against the need to limit undue regulatory burden. As all standards apply on an annual basis, annual reporting is appropriate.

5.151 Our draft decisions on reporting and compliance accord with s 194(3)(d) which provides a PQ path may include "reporting requirements, including special reporting requirements in asset management plans, if the provider fails to meet the quality standards".

5.152 We have also based our draft decisions on existing fibre reporting requirements under Part 4AA where disclosure is made annually. We also note that under Part 4, reporting is done on an annual basis.

5.153 Data from the Chorus information requests shows our draft decisions on reporting and compliance are consistent with, and no more onerous than, Chorus' current reporting practices under the UFB contracts where reporting is monthly and published quarterly. We consider the reporting requirements we have specified will provide the appropriate level of granularity to analyse trends in Chorus' FFLAS quality against the quality standards over a year.

5.154 We have also proposed reporting and compliance obligations for the availability quality standard differentiated by geography, being POI areas as explained in paragraph 5.74 above.

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[218] Section 193(2).

5.155 For the reasons set out above, having regard to the legal framework from paragraph 5.14, we consider our draft decisions on reporting and compliance best give effect to the purposes of ss 166(2) and 192.

Attachment A Technical details for revenue path and wash-up mechanisms

Purpose and structure of this attachment

A1 This attachment explains our draft decisions on the design and implementation of the revenue path and wash-up mechanisms, and our reasons for them.

A2 It starts by discussing what we have considered when reaching these draft decisions. It then covers our approach to the revenue cap, and then our approach to the wash-up.

Relevant considerations

A3 Under s 166(2) of the Telecommunications Act 2001 (the Act), we must make determinations and decisions that we consider best give, or are likely to best give, effect:

A3.1 to the purpose in s 162; and

A3.2 to the extent that we consider it relevant, to the promotion of workable competition in telecommunications markets for the long-term benefit of end-users of telecommunications services.

A4 The draft decisions we have made about the revenue path and wash-up are in part an application of the IMs (predominantly the specification of price and revenues IM) but in most cases require an exercise of judgement.

A5 Where the draft revenue path and wash-up decisions require us to exercise judgement, we have explained why those decisions best give, or are likely to best give, effect to the s 166(2) purposes (within the requirements of other provisions of the Act).

A6 Where the decisions do not require us to exercise judgement, we have not specifically explained those decisions by reference to the s 166(2) purposes. Rather, we have explained those decisions by referencing our specific obligations under the IMs or the Act.

A7 All our individual draft decisions have been made because we consider that they contribute towards our aim of determining a revenue path and wash-up mechanism that best gives or is likely to best give, effect to the s 166(2) purposes. We have not considered it necessary to specifically explain why each individual recommended draft decision best gives, or is likely to best give, effect to the s 166(2) purposes. Rather, each individual recommendation, and our rationale for each recommendation, is intended to contribute to our overall determination of the revenue path and wash-up that best gives, or is likely to best give, effect to the s 166(2) purposes.

A8 However, where promotion of the purpose of Part 6 or workable competition are determinative for individual decisions, we have identified how they are relevant, and discussed how our proposal best promotes them, relative to other realistic alternatives.

A9 In addition to the s 166(2) matters, there are also specific statutory provisions we must give effect to when making decisions about the revenue path and wash-up. Specifically:

A9.1 the purpose of price-quality regulation (s 192);

A9.2 the requirements for what a price-quality path must specify (s 194);

A9.3 the requirement to specify maximum revenues and not maximum price or prices
(s 195);

A9.4 the requirement to determine a wash-up mechanism for over- or under-recovery during PQP1 (s 196);

A9.5 the requirement to smooth revenues if, in our opinion, it is necessary or desirable to minimise undue financial hardship to regulated providers or to minimise price shocks to end-users (s 197); and

A9.6 the requirement to apply the relevant IMs when determining prices (s 175).

A10 Finally, while not an obligation that we must give effect to, we need to consider the interactions between our decisions on the revenue path and wash-up and the expected regulations in respect of anchor services and DFAS under ss 227 and 228.

Best giving effect to the section 162 purpose

A11 In considering how to best give effect to the purpose of Part 6 when making decisions about the revenue cap and wash-up, we are concerned with:

A11.1 Chorus' incentives to invest under s 162(a) – a credible pathway to recovering past and future investments is necessary for Chorus to have on-going access to the capital it needs to fund this investment;

A11.2 Chorus' incentives to improve efficiency under section 162(b) – inclusion of a wash-up for a given component of the revenue path effectively removes Chorus' incentives to manage it, so we need to ensure this does not adversely affect incentives for efficiency; and

A11.3 limiting excessive profitability under s 162(d) – revenue path substantially determines profitability over the short term, wash-up does so over the long term.

A12 The other limbs of the purpose statement are less directly relevant to the revenue path and wash-up. However, as discussed in Chapter 2, our obligation to best give effect to the purpose applies to our PQ decision as a whole, and we consider that other aspects of the PQ path adequately promote the other limbs.

Relevance and promotion of workable competition in telecommunications markets

A13 We must also promote workable competition in telecommunications markets where relevant. We consider competition is relevant to our revenue path decisions in three ways:

A13.1 the risk of the flow-on impact of revenue on our decisions on Chorus' pricing decisions, that may affect the ability of fixed wireless access (FWA) providers and unbundled layer 2 providers to compete with Chorus in access markets;

A13.2 the risk of the wash-up mechanism allowing Chorus to artificially lower the prices of its products in the short term, while remaining whole in present value terms via the wash-up, again threatening competition from FWA providers or unbundled layer 2 providers; and

A13.3 conversely, the revenue recovery profile we determine should where possible provide Chorus the opportunity to compete effectively.

A14 We have not attempted to use the revenue path and wash-up mechanism to eliminate these risks. As a tool that works in the aggregate, the revenue path is not suited to such a task. Instead, our decisions have focused on avoiding imposing regulatory distortions on pricing where possible. As discussed in relation to alternate depreciation of the financial loss asset, we consider a status quo approach best achieves this in the short term.

A15 We consider other tools (such as the pricing and contract disclosures we have proposed as part of our ID draft decisions, the declared services, or equivalence and non-discrimination obligations under the fibre deeds) are better suited to managing competition risks from pricing.

Purpose of price-quality regulation

A16 The purpose of price-quality regulation under s 192 is to regulate the price and quality of FFLAS provided by regulated providers. It is axiomatic that the revenue path acts as the regulatory constraint on the price of Chorus' FFLAS.

A17 We consider that our revenue path decisions meet the purpose of PQ regulation in s 192 by specifying an amount of allowable revenue in respect of FFLAS that best gives effect to the s 166(2) purposes.

Requirements for a price-quality determination

A18 Our decisions (across the PQ determination) on the revenue path and wash-up fulfil two of the requirements under section 194:

A18.1 setting 'allowable revenue' specifies "the maximum revenues that may be recovered by a regulated fibre service provider" under s 194(2)(b)(ii); and

A18.2 requiring ex ante compliance with the revenue path and the date or dates by which compliance must be demonstrated under s 194(2)(e).

Requirement to specify a revenue cap and not a price cap

A19 For PQP1 and PQP2, we must determine a revenue cap for Chorus and not a price-cap. While the two forms of control are distinct, the lines between the two forms of control are not absolute. In determining our approach to the revenue cap, we must consider whether particular measures would cause the form of control to take on price cap-like characteristics, contrary to s 195.

A20 As we noted in our September 2020 Process and Approach Paper, the key distinguishing characteristics of a revenue cap we are concerned with are:[219]

A20.1 the extent to which demand risk (in present value terms) is borne by end-users rather than Chorus; and

A20.2 the extent of flexibility retained by Chorus to allocate revenue recovery between different classes of end-users, including by restructuring tariffs or by introducing new products.

Requirement to specify a wash-up

A21 Section 196 of the Act requires us – from PQP2 – to apply a wash-up mechanism that provides for any over- or under-recovery of revenue in respect of PQP1. As these over- or under-recoveries will occur in PQP1, we must specify at least some of the features of the wash-up mechanism prior to the start of PQP1. As noted above, we have proposed doing this via an amendment to the IMs.

A22 However, the Act does not define what constitutes an over- or under-recovery. As such, deciding the scope of the wash-up is an exercise in judgement that must meet the s 166 criteria.

Requirement to consider revenue smoothing

A23 When we determine our first PQ path, we must smooth revenues over two or more regulatory periods if we think it necessary or desirable to minimise any undue financial hardship to a regulated provider or to minimise price shocks to end-users.

Price shocks

A24 We assess price shocks in terms of the rate of increase in 'allowable revenue' (relative to current revenues for 2022). This is because 'allowable revenue' is a material determinant of the prices end-users face and is what we regulate.

A25 We have not, in general, considered the rate of change in any individual tariff or class of tariffs. This is because, under a revenue path, we do not have responsibility for regulating pricing, and consider other regulatory tools such as pricing disclosures and the expected regulations in respect of anchor services and DFAS under ss 227 and 228 are better able to manage individual price shocks.

[219] Commerce Commission "Fibre Information disclosure and price-quality regulation – proposed process and approach for the first regulatory period" (15 September 2020), Chapter 5.

Undue financial hardship

A26 Any temporary under-recovery of revenue will have to be financed by Chorus before it has the opportunity to recover this revenue. This may be financed through retaining earnings or through increasing borrowing. However, both these options have limits, and could have flow-on impacts, particularly on willingness to invest.

A27 In general, our position in Part 4 has been that the burden of proof for claims of financial hardship lies with the regulated provider. We propose the same approach for Chorus.

Interactions with declared services

A28 We do not have responsibility for determining declared services.[220] Instead, the Minister has responsibility for recommending that declared services regulations be made and MBIE has released exposure drafts of the initial anchor services and DFAS declared services regulations.[221] However, the regulations for these services will contain price terms that will cap the prices of certain products, we need to consider their interactions with the revenue path.[222]

A29 Firstly, the anchor services and DFAS will directly protect some of Chorus' customers from price shocks but not others. As such, we propose specifically considering the impacts of price shocks on non-anchor/DFAS customers when making revenue path and smoothing decisions.

A30 Secondly, as the declared services in effect create a hybrid revenue-price cap, we must make sure that we do not overdetermine Chorus' prices, leading to situations where compliance is impossible.

A31 Finally, we need to ensure consistency with details of the declared services' price terms (for example, by taking a consistent approach to CPI inflation).

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[220] However, we may review anchor services and DFAS under s 208 of the Act and recommend that regulations be made.

[221] Clauses 14 and 15 of schedule 1AA of the Act provide that the Minister may recommend that initial anchor services and DFAS regulations be made even though we have not conducted a review.

[222] MBIE "Declaration of anchor and direct fibre access services under the Telecommunications Act 2001" (26 May 2021).

Requirements of the IMs

A32 Under s 175, we have an obligation to apply the IMs when determining revenues.[223] The relevant IMs in this case are:

A32.1 The specification of price and revenues IM – this IM sets the fundamental requirements for how the revenue cap is defined and how compliance with it must be demonstrated. Many of our decisions simply implement these requirements. In some cases, we have also proposed amendments to these IMs.[224]

A32.2 The Chorus capex IM – specifically, the capex IM requires that any 'connection capex variable adjustment' and any 'individual capex' determined after a regulatory period commences is accounted for via the wash-up.[225]

Economic principles

A33 Two of our economic principles are relevant to decisions on the revenue cap and wash-up. These are

A33.1 real financial capital maintenance (RFCM); and

A33.2 risk allocation.

Real financial capital maintenance

A34 Maintaining RFCM is a fundamental goal of our revenue path and wash-up. This is because RFCM is key to maintaining incentives to invest while limiting excessive profits. As set out in Table 1 above and discussed in more detail below (where relevant), we have ensured that the combination of decisions we recommend are consistent with Chorus having the *ex ante* expectation of a normal return.

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[223] Section 175 refers to determining "prices", and s 164 defines "price" as including "revenues".

[224] Note that to provide increased certainty about the operation of the specification of price and revenues IM, we are proposing IM amendments that will: make it clear that the revenue cap may operate on a forecast basis, and provide more detail about the calculation of the wash-up mechanism and how it is carried forward into future regulatory periods.

[225] *Fibre Input Methodologies Determination 2020* [2020] NZCC 21, clause 3.7.1(4)(b).

A35 This does not mean, however, that Chorus' allowable revenue in any given year (or even any given regulatory period) needs to perfectly reflect building blocks costs. We have instead focused on decisions that maintain RFCM on a long-term present value basis. This is because there may be other reasons (such as particularly the need to manage price-shocks and undue financial hardship) for us to alter Chorus' revenue on cashflow basis.

Risk allocation

A36 Ideally, we allocate risks to regulated providers or end-users depending on who is most able to manage that risk, unless doing so would be inconsistent with s 166(2) or with other provisions of the Act.

A37 For the revenue path and wash-up mechanism, this is relevant to deciding what risks we do and do not provide wash-ups for. For example, it is not appropriate to provide a wash-up for risks that Chorus is largely able to control (such as connection unit costs).

A38 However, in many cases, risk allocation is not dictated by this principle, as other considerations predominate. In some cases, these are requirements imposed by the Act (such as end-users bearing demand risk via a revenue cap, consistent with s 195). In other cases, this is to maintain RFCM (such as end-users in effect bearing revenue path inflation risk).

A39 In making these assessments, we must also consider what risks Chorus is compensated for taking via the WACC.

Draft decision on the revenue path

A40 This section gives details of how we propose the revenue path will work, and our reasons why we consider it meets the criteria in s 166(2) of the Act.

A41 It covers:

A41.1 the over-all structure of the revenue path;

A41.2 how 'forecast allowable revenue' is calculated;

A41.3 how pass-through costs are accounted for;

A41.4 how CPI inflation is treated;

A41.5 the real (net of inflation) slope of the revenue path;

A41.6 how in-period revenue smoothing is accomplished;

A41.7 how Chorus must demonstrate compliance with the revenue path; and

A41.8 when Chorus must demonstrate compliance with the revenue path.

Draft decision on the structure of the revenue path

A42 This section covers the fundamental design of the revenue path, and specifically how we have applied the requirements in the Fibre IMs.[226]

Draft decision

A43 As required by the fibre IMs and with the draft IM amendments we propose, the revenue cap will be based on requiring that in each year of the regulatory period:

A43.1 'forecast total FFLAS revenue' must be less than or equal to;

A43.2 'forecast allowable revenue'.

Reasons

A44 As this decision is proscribed by the IMs, we did not consider alternative options. For our reasons for amending the IMs to clarify that this assessment may be done on a forecast basis, see Chapter 3 of our draft IMs reasons paper.[227]

Draft decision on calculating 'forecast allowable revenue'

A45 Per the IMs 'forecast allowable revenue' is composed of:[228]

A45.1 building blocks revenue;

A45.2 pass-through costs; and

A45.3 a wash-up amount.

A46 The IMs leave the Commission discretion about how these are implemented in particular about how 'building blocks revenue' and the 'wash-up amount' are specified.[229]

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[226] Note that we have proposed amending the fibre IMs to clarify that this assessment is done on a forecast basis, see Commerce Commission "Fibre Information disclosure and price-quality regulation – proposed process and approach for the first regulatory period" (15 September 2020), Attachment A.

[227] Commerce Commission "Proposed amendments to Fibre Input Methodologies: Draft Decision – Reasons Paper" (27 May 2021), Chapter 3.

[228] *Fibre Input Methodologies Determination 2020* [2020] NZCC 21, clause 3.1.1.

[229] For PQP1 we have specified a value of $0.

Draft decision

A47 To implement the requirements in the IMs, and to support our decisions below on pass-through costs, treatment of CPI, and the slope of the revenue path, we have:

A47.1 specified building blocks revenue for 2022 (year one of the regulatory period) as a defined nominal value;[230]

A47.2 specified building blocks revenue in 2023 and 2024 (years two and three of the regulatory period) by reference to the following formula:[231]

$$FBBR_{t-1} \times (1 + \Delta CPI_{t-1} + \Delta Q_t)$$

Where:

$FBBR_{t-1}$	is 'forecast building blocks revenue' for the previous regulatory year
ΔCPI_{t-1}	Is the change in CPI over the previous regulatory year
ΔQ_t	is the real slope of the revenue path, specified as the change in quantities

A48 Using this formula allows us to specify the real value of building blocks revenue from the outset of the regulatory period but – consistent with our decision below on treatment of CPI – for the path to move in line with actual inflation.

A49 The change in quantities factor is analogous to the "X-factor" used when regulating revenues under Part 4 of the Commerce Act, in that it specifies the real slope of the revenue path. We have labelled it 'change in quantities' such that it better reflects the basis of the decision. The values are different for years two and three of the revenue path and reflect our decision on in-period smoothing discussed below at A82 to A87. The rates are:

A49.1 6.1% in year two (2023); and

A49.2 3.5% in year three (2024).

Alternatives considered

A50 The main alternative we have considered was specifying building blocks revenue in each year of the regulatory period as fixed nominal values.

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[230] *Fibre Input Methodologies Determination 2020* [2020] NZCC 21, clause 3.1.1.

[231] Under s 164 of the Act, "prices" (which includes revenues) may be specified by reference to a formula by which specific numbers are derived.

Reasons

A51 This decision is an implementation one, necessary to implement other policy decisions that we consider best give effect to the criteria in s 166(2) of the Act.

Draft decision on treatment of pass-through costs

Draft decision

A52 We have proposed that Chorus must prepare 'demonstrably reasonable' forecasts of pass-through costs for the regulatory year when calculating forecast allowable revenue.

A53 Differences between these forecasts and the actual costs Chorus faces over the regulatory year are accounted for via the wash-up, as discussed below.

Alternatives considered

A54 The alternative we have considered was specifying nominal values of pass-through costs in advance of the regulatory period.

Reasons

A55 This draft decision is one that we consider best gives effect to the intention of the IMs. This is to ensure that the most up-to-date values for these costs are passed through to prices as intended.

A56 Were the values of pass-through costs likely to have a significant impact on allowable revenue, for revenue stability reasons we would consider fixing these values in advance. However, as they are only a minor component of total forecast allowable revenue, we do not consider this necessary in PQP1.

Draft decision on treatment of CPI inflation

A57 The revenue path is required to be specified in nominal terms.[232] As the costs Chorus will face, and the value of the revenue it receives from access seekers will be nominal dollars, we need to make allowance for inflation when specifying the revenue path.

A58 This use of CPI is distinct from the forecast CPI used to determine revaluations.

Draft decision

A59 We propose that the revenue path will initially be determined based on RBNZ forecasts of CPI inflation. This (via the smoothing building block discussed below) will determine building blocks revenue in year 1 of the regulatory period.

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[232] *Fibre Input Methodologies Determination 2020* [2020] NZCC 21, clause 1.1.4.

A60 The timing of the forecast CPI that is used to smooth the revenue path will match the timing of the forecast CPI that is used to forecast input cost inflation.

A61 Over the course of the revenue path, building blocks revenue will then increase based on actual CPI inflation.[233]

Alternatives considered

A62 We have also considered specifying the revenue path for all years by reference to forecast CPI, either with or without a wash-up at the end of the regulatory period.

Reasons

A63 In exercising judgement in making this decision we have considered:

A63.1 the impact of forecast inflation risk on Chorus' incentives and ability to invest, promoting s162(a); and

A63.2 the impact of inflation risk on profitability, as variations from forecast inflation may create windfall gains, contrary to s 162(b).

A64 We do not consider the promotion of workable competition relevant to this decision.

A65 We consider this decision best promotes the purpose of Part 6 per s 166(2)(a) relative to the realistic alternatives we have identified. The choice and timing of the calculation of the forecast CPI that is used to smooth the revenue path within the period is not defined by the IMs, and we consider that the forecast CPI we use, and its timing, should match our forecasts of input cost inflation.

A66 Matching the timing of these forecasts means that Chorus' exposure to forecast inflation risk from the input cost building blocks and smoothing of the revenue path is limited. This allows for expected inflation in the revenue path that is sufficient to cover inflation in input costs, and hedges the inflation forecast risk.

A67 Conceptually, a 'CPI plus Q' revenue path restricts revenues from increasing each year by more than CPI plus a quantity factor to account for forecast growth on Chorus' network.

[233] Per Schedule 1 of the draft Chorus Price-quality determination, the specific value of CPI is a four-quarter weighted average of CPI for the preceding year. CPI is defined by reference to the Fibre IMs.

A68 More specifically, in the unsmoothed/smoothed building blocks revenue model we have proposed applying, the 'forecast building blocks revenue' for the first year of the regulatory period can be specified in the determination. In remaining years of the regulatory period, forecast building blocks revenue is defined by reference to the prior year, with a CPI and quantity adjustment.

A69 Real FCM is achieved, according to the simultaneous equations:

$$Smoothed\ BBR_{t+1} = Smoothed\ \ BBR_t \times (1 + \Delta CPI_t) \times (1 + Q_t)$$

and

$$NPV_{MÆ¢_r}(Smoothed\ BBR_t)_{t=1}^{3} = NPV_{MÆ¢_r}(Raw\ BBR_t)_{t=1}^{3}$$

A70 This ensures the area under the smoothed revenue path equals the sum of the unsmoothed building block costs, in net present value terms.

A71 Unlike the Part 4 EDB IMs, the Fibre IMs do not determine the approach to forecasting inflation when setting a price or revenue path. [234] We must therefore decide which CPI index to use and on what timing basis.

A72 We have identified two options for the choice of CPI index:

1.1 RBNZ inflation forecast for CPI, as we use in Part 4;

1.2 'market based' inflation forecasts.

A73 We consider that the RBNZ inflation forecast for CPI is a suitable starting point for revenue smoothing given it is:

A73.1 reliable as it not produced by a private company (unlikely to be biased);

A73.2 an enduring publication (unlikely to be discontinued);

A73.3 the same forecast series used in the WACC determination when setting a price or revenue path.

[234] Compare for example the Fibre IMs Part 3 Subpart 1 Specification of Price and Revenues (3.1.1) to the EDB IMs Part 3 Subpart 1 Specification of price clauses 3.1.1(7)-(8).

A74 In practice, our approach would be similar to that in the EDB IMs:[235]

A74.1 We would use forecasts based on the Reserve Bank of New Zealand's (RBNZ) forecasts of inflation issued as part of the Monetary Policy Statement, consistent with the forecast CPI we use for input cost inflators;[236]

A74.2 For the out-years, beyond where RBNZ forecasts are available, we would assume a linear reversion to the RBNZ inflation target of 2%.

A74.3 Then on a yearly basis from year two, and as a partial correct to CPI forecast error, the CPI forecast value would be replaced with actual CPI. This would determine the actual net allowable revenue for each year. This is as an annual CPI wash-up.[237]

A75 We recognise that revenue may might not be perfectly recovered under this approach. For example, if the CPI forecast is high, we depress starting price to maintain the correct area under the price path. If CPI then turns out not to be as high, the starting price is still fixed, and actual net allowable revenue is lower than it should have been.

A76 Chorus and Spark submitted support for price path and/or revenue path smoothing, without commenting on the approach to forecasting inflation.[238]

A77 Reflecting on the Part 4 approach for EDBs, Vector has submitted on inflation forecasting risk across three areas (or 'parameters') in the BBAR/MAR model:

A77.1 RAB indexation (revaluation) and income adjustments;

A77.2 Revenue path forecasting; and

A77.3 Revenue path wash-ups.

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[235] Consistent with our reasons in Part 4 for EDBs. See Commerce Commission "Amendments to electricity distribution services input methodologies determination - Reasons paper" (26 November 2019), paragraphs 3.74-3.76.

[236] Unlike Part 4, however, these would not necessarily be determined at the same time as the determination of the weighted average cost of capital (WACC).

[237] This requires Chorus to use CPI stipulated for each quarter in Statistics New Zealand's 'All Groups Index SE9A' for the relevant year when calculating the revenue wash-up draw down amount.

[238] Chorus on PQID process and approach, Spark on PQID process and approach paragraphs 16-17.

A78 Vector's primary focus appears to be the impact of over-forecasting inflation on the first area - RAB indexation and revaluation income. For example, Vector has submitted:

> The Commission's method for forecasting inflation has performed quite poorly. It has consistently overestimated actual inflation for determining notional revaluation income and for deducting allowable revenue for Part 4 suppliers subject to Price-Quality regulation. This consistent over-forecasting of inflation is a key reason why suppliers have been unable to achieve their regulatory WACC.[239]

A79 Vector requested that the Commission consider an alternative approach to inflation forecasting in relation to RAB indexation:

> "At a minimum Vector considers it important for the Commission to address the shortcomings to the current approach to forecasting inflation which relies extensively on the assumption that inflation linearly approaches 2% within five years. Instead, we see far greater benefit to the Commission utilising market-based inflation forecasts."[240]

A80 Vector has also submitted views on inflation over-forecasting and impacts on revenue paths in Part 4:

> "Vector notes the issue of inflation forecasting risk has been a significant issue for EDBs and GPBs regulated under Part 4. This includes inflation forecasts for annual price adjustments…"[241]

A81 However, Vector has not proposed an alternative to our revenue path proposal for Fibre PQID specifically and appears to be satisfied with an alternative approach to the CPI wash-up as a solution:

> "The wash-up mechanism proposed for Chorus and LFCs appears to have the benefit of limiting the extent to which inflation forecast error for price inflation affects supplier revenue recovery."[242]

> "We consider the proposal for Chorus appears to address the impact of price inflation errors have on forecast revenues. To this end, we recommend the Commission consider more fully whether its approach to inflation forecasting remains appropriate or requires a more holistic review."[243]

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[239] Vector "Submission on Fibre input methodologies – draft decision" (28 January 2020), paragraph 53.

[240] Vector "Submission on Fibre input methodologies – draft decision" (28 January 2020), paragraph 54.

[241] Vector "Submission on Fibre input methodologies – Regulatory processes and rules draft decision" (3 June 2020), paragraph 4.

[242] Vector "Submission on Fibre input methodologies – Regulatory processes and rules draft decision" (3 June 2020), paragraph 3.

[243] Vector "Submission on Fibre input methodologies – Regulatory processes and rules draft decision" (3 June 2020), paragraph 5.

Draft decision on the real slope of the revenue path

A82 In addition to having the revenue path move in line with CPI, we may also 'slope' the revenue path relative to CPI. This determines the 'real' slope of forecast allowable revenues over the period. The analogous concept in PQ regulation under Part 4 of the Commerce Act is the "X-factor".

Draft decision

A83 For PQP1, we have proposed sloping the revenue path in line with forecast aggregate growth in demand for Chorus' services.

A84 Note that this forecast will (unlike CPI) not be updated for actual demand for the purposes of determining forecast allowable revenue. To do so would in effect create a price-path, as Chorus would be bearing demand risk, contrary to s 196 of the Act.

Alternatives considered

A85 We have also considered setting the real slope of the revenue path to zero, in effect leaving revenue constant in real terms over the period. In other circumstance (such as where it was necessary to smooth revenues to avoid price shocks) we could have determined some other slope (again, as we have done when determining alternative "X-factors" under Part 4 of the Commerce Act).

Reasons

A86 In the context of a network where demand is still forecast to grow, we consider a revenue path that grows in line with demand best promotes the long-term benefit of end-users. This approach means that average revenue per customer will be approximately constant over the regulatory period, allowing (though not requiring) prices to be relatively stable.

A87 Additionally, this is consistent with the price terms of the declared service. As revenue derived from these services will grow as customer numbers grow, revenue growing over the period will account for this.

Draft decision on achieving in-period revenue smoothing

A88 Given the decisions above about CPI and the real slope of the path, we must consider how to give effect to this in-period smoothing of allowable revenue.

A89 Note that this is distinct from the between-period revenue smoothing that we must consider where it is necessary to avoid price-shocks or undue financial hardship. [244] As discussed in Chapter 3, we do not consider either of these are at risk of occurring.

[244] Section 197.

Draft decision

A90 We have proposed determining an additional 'in-period smoothing' building block. The value of this smoothing building block is determined by the nominal difference between the 'raw' building blocks revenue and the smoothed amounts that result from applying the simultaneous equations in paragraphs B64 above.

Reasons

A91 This decision is a pure implementation decision necessary to give effect to other decisions we consider promote the Part 6 purpose. As such, we have chosen this approach as we consider it:

A91.1 transparent; and

A91.2 simple to implement.

Draft decision on demonstrating compliance with the revenue path

A92 To ensure the revenue path is effective, we must require Chorus to demonstrate compliance with it. We have the power under s 193(2) of the Act to issue Chorus with a notice requiring it to provide any or all of:

A92.1 a written statement that states whether it has complied with the revenue path;

A92.2 a report on this written statement that is signed by an auditor in accordance with any form specified by the Commission;

A92.3 sufficient information to enable the Commission to properly determine whether the revenue path has been complied with; and

A92.4 a certificate, in the form specified by the Commission and signed by at least 1 director, confirming the truth and accuracy of any information provided.

Draft decision

A93 We have proposed that Chorus must provide:

A93.1 a statement that it has (or has not) complied with the revenue path;

A93.2 the supporting information described below; and

A93.3 that this statement and supporting information are subject to audit and certification requirements.

A94 This will be demonstrated on an ex ante basis, at the start of each regulatory year, and then any other time Chorus intends to change its prices.

A95 As part of the information necessary to determine that the price path has been complied with, we have specified that 'forecast total FFLAS revenue' must be broken down into is component parts. Specifically, the information used to calculate forecast total FFLAS revenue in accordance with the formula:

$$\sum_{i} (P_i - D_i) \times FQ_i$$

Where-

i is each tariff;

P is the corresponding price for that tariff;

D is any discount to the price; and

FQ is the relevant forecast quantity.

A96 We have not specified the exact form this information would take but anticipate that a schedule of products (broken down into the relevant tariffs that apply to that product) and corresponding prices, discounts, and quantities would meet this requirement. Where prices will change at some point over the regulatory year, we would expect that these are itemised separately.

A97 We have specified these requirements in a (draft) notice under s 193(2) of the Act, rather than incorporating them as part of the s 170 PQ determination.

Draft decision on timing of revenue path compliance

A98 We are required by s 194(2)(e) to specify the date or dates on which Chorus must demonstrate compliance with the revenue path (by providing the information discussed above).

Draft decision

A99 We have proposed that Chorus must provide this information:

A99.1 with respect to regulatory year 2022, 30 working days following the start of the regulatory period; and

A99.2 for all years of the regulatory period, 30 working days prior to any time Chorus intends to changes its prices.

Alternatives considered

A100 We also considered:

A100.1 a single compliance statement in respect of the whole period; and

A100.2 only requiring compliance at the start of each regulatory year.

Reasons

A101 We consider this decision adequately balances:

A1.1 the need for flexibility – as the timing of price changes is subject to change, and may not necessarily follow a regular annual cycle, and even where it does, this may not align with regulatory years – including a requirement for updates is consistent with this; and

A1.2 the need for timely information to allow us to assess whether the revenue path has been complied with.

Wash-up mechanism

A102 While the wash-up mechanism does not form part of the revenue path in PQP1, it is a key part of the overall regulation of Chorus' revenue over the long-term. Because of this, we have chosen to set out (here, and in our proposed amendments to the Fibre IMs) how this mechanism will function.

A103 The over-all scope of the mechanism is provided for in proposed amendments to the specification of price and revenue IMs.

A104 Rather than being specified in the PQ determination or s193(2) compliance requirements, we propose to specify these calculations in a s 221 notice that we will issue to Chorus. We intend to consult on a draft of this notice shortly following the publication of our draft decision.

A105 This section covers:

A105.1 the overall structure of the wash-up mechanism;

A105.2 how wash-up accrual will be calculated;

A105.3 how 'actual total FFLAS revenue' will be calculated;

A105.4 how 'actual allowable revenue' will be calculated; and

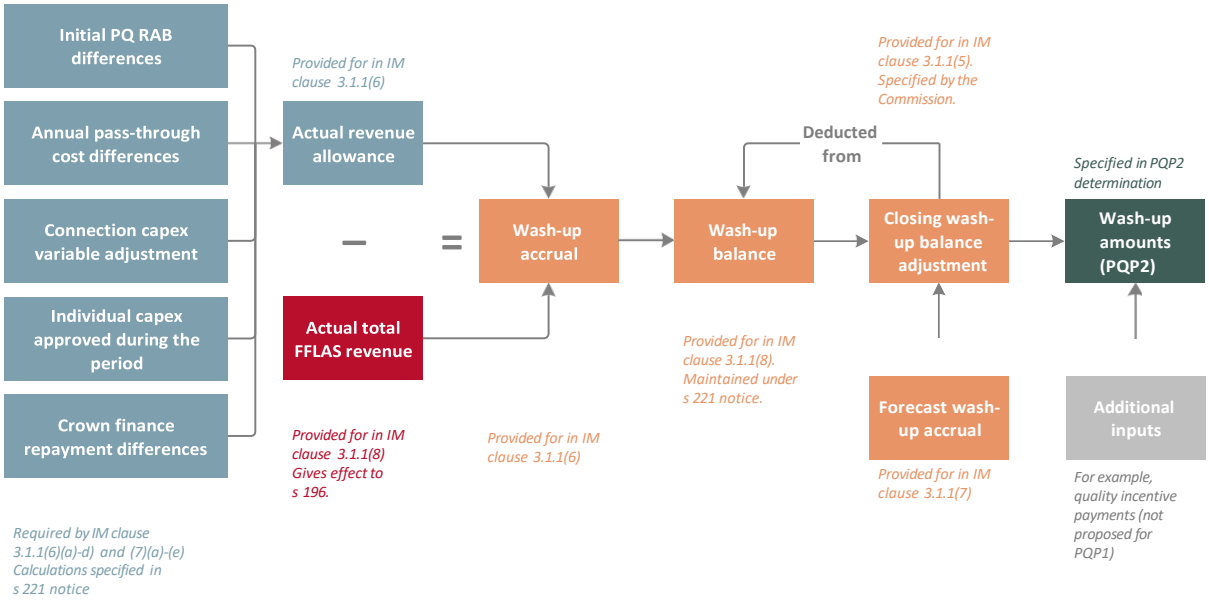
A105.5 the scope of the wash-up for PQP1.

Structure of the wash-up

Draft decision

A106 We have proposed a single wash-up across all aspects that are being washed-up, composed of a wash-up accrual, a wash-up balance, and an eventual drawdown 'wash-up amount' in future regulatory periods.[245]

Figure A1 Illustration of the wash-up mechanism



Alternatives considered

A107 We also considered different wash-up for different factors, or a 'rolling' wash-up without an accrual/balance/draw-down approach.[246]

Reasons

A108 While this decision requires an exercise of judgement (it is not determined by the Act), this is an implementation decision (necessary to implement other revenue path decisions that promote s 162 and workable competition), so s 166(2) is not relevant to the analysis.

A109 We recommend this approach because:

A109.1 it is straight-forward; and

A109.2 transparent.

A110 Additionally, this approach has the benefit of minimising revenue and price volatility.

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[245] These concepts have been specified in proposed updates to the Fibre IMs. [redacted]

[246] Commerce Commission "Fibre Information disclosure and price-quality regulation – proposed process and approach for the first regulatory period" (15 September 2020), chapter 5.

A111 The approach mirrors the one taken in Part 4 for Transpower with their "economic value" account.

A112 We also note that this approach satisfies the requirements of s 196, which require us to:

> apply a wash-up mechanism that provides for any over-recovery or under-recovery of revenue by the regulated fibre service provider during the previous regulatory period to be applied in a manner that is equivalent in present value terms (as calculated in the manner that the Commission thinks fit) over 1 or more future regulatory periods.[247]

A113 As discussed in more detail below, the wash-up we propose is broader than just what is required to meet this requirement.

Calculation of wash-up accruals

Draft decision

A114 Based on the difference between an "actual" version of 'allowable revenue' and an "actual" version of 'total FFLAS revenue', where a positive value means Chorus may recover more in future (is "owed" future additional revenue) and where a negative value means it must recover less (Chorus "owes" access-seekers a future reduction). This will mean all relevant aspects of the wash-up are captured.

Alternatives considered

A115 We have considered alternatives based on:

A115.1 'forecast total FFLAS revenue' versus 'actual total FFLAS revenue' – this would only capture in-year demand risk; or

A115.2 'forecast allowable revenue' versus 'actual total FFLAS revenue' – this would capture only in-year demand risk and any under-charging relative to 'allowable revenue'.

Reasons

A116 Incentives to invest under s 162(a), incentives to improve efficiency under s 162(b), and limits on excess profitability under s 162(d) have informed out judgement on this specific decision.

A117 We also consider workable competition relevant, as the availability of the wash-up mechanism allows Chorus freedom to price below cost in the short term while still recovering revenue from end-users in the long term in a manner that may harm competition.

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[247] Section 196.

A118 We consider this decision best promotes the purpose of Part 6 per s 166(2)(a) relative to the realistic alternatives we have identified because it enables our over-all approach to the wash-up, with all factors (both those that cause actual 'allowable revenue' and those that cause actual 'total FFLAS revenue' to differ from forecasts) accounted for.

A119 To best promote incentives to invest, Chorus requires a reasonable expectation that it will be able to earn a normal return (via the eventual wash-up draw down), factoring in things such as un-forecast 'individual capex' or lower than expected inflation (which depresses forecast 'allowable revenue').

A120 On the end-user side, we must ensure that Chorus does not benefit from wind-fall gains based on factors beyond its control (such as lower than forecast demand for connection capex) creating excess profits.

A121 Finally, we need to ensure that things Chorus can control (such as the efficiency of its real opex or the efficient timing of its capex) are not washed-up for, preserving its incentives to improve efficiency.

A122 We consider that this approach to the wash-up mechanism does all three of these things.

A123 We consider this decision best promotes workable competition per s 166(2)(b) relative to the realistic alternatives we have identified because, in terms of promoting workable competition, we are concerned that the wide scope of this wash-up – specifically the inclusion of an unlimited accounting for undercharging – could in some circumstances harm workable competition from FWA providers in access markets.

A124 However, as noted above in relation to an undercharging limit, we are reasonably confident that Chorus' cashflow incentives are stronger at this point in time.

A125 Finally, we consider this approach the least-complex and most transparent way of implementing the wash-up. This should reduce compliance cost and the risk of unintended outcomes.

Calculating actual total FFLAS revenue

Draft decision

A126 We propose that Chorus would have to calculate the total FFLAS revenue component of the wash-up accrual on the basis of prices (net of discounts) and actual quantities.

$$ATFR = \sum_{i} (P_i - D_i) \times AQ_i$$

A127 This is the same approach applied as for the calculation of 'forecast total FFLAS revenue, with actuals substituted for reasonable forecasts of quantities.

Alternatives considered

A128 We also considered and approach where prices were updated as well as quantities, however prices and discounts remain unchanged between the calculation of 'forecast total FFLAS revenue' and 'actual total FFLAS revenue' because under our proposed compliance approach, 'forecast total FFLAS revenue' must already have been updated whenever prices change.

Reasons

A129 We consider this is a pure implementation decision, necessary to give effect to our other decisions. As such, we have proposed this option because it is straightforward and transparent.

Calculating the actual revenue allowance

Draft decision

A130 We propose that the actual revenue allowance should be calculated based on a re-running of the building blocks model, with only the washed-up inputs to it updated, and by substituting actual pass-through costs for forecast ones.

Alternatives considered

A131 We also considered an approach where each component of what is being washed up for is calculated separately.

Reasons

A132 This is a pure implementation decision, that simply enables an overall mechanism that best gives effect to the purpose of Part 6 and promotion of workable competition.

A133 Our reason for recommending this approach is that it is straight-forward to calculate and would not require complex formulae to be specified in advance. This should minimise the chances of any error.

A134 There may be s 221 notice drafting complexities to ensure the model Chorus must use is unambiguous, but we do not consider these insurmountable. In Part 4, we have taken a similar approach to Transpower's economic value (EV) account wash-up, and to the capex wash-up adjustments for EDBs.

Scope of the wash-up mechanism

A135 We are required by statute to include a wash-up for any under- or -over recovery of revenue.248 At a minimum, this encompasses differences in recovery due to differences in forecast versus actual levels of demand.

Draft decisions

A136 We will include an explicit wash-up where:

A136.1 Chorus not bearing the risk that outcomes differ from forecasts best promotes the purpose of Part 6 or workable competition (often in terms of the economic principles and incentive framework); and

A136.2 there is no existing mechanism that provides for that.

A137 As the wash-up mechanism is that works across regulatory periods (that is accrued in one regulatory period and drawn down in another), we have proposed that to enhance regulatory certainty, its components be specified in the IMs.

A138 The existing IMs require us to include wash-ups for:[249]

A138.1 the connection capex variable adjustment; and

A138.2 any individual capex projects for a regulatory period approved after the determination of the PQ path.

A139 We are also proposing, as part of an IM amendment, to require a wash-up for:

A139.1 the revenue impacts of differences between the revenue impact of estimated value of the initial PQ RAB we will use as part of our final PQ decisions, and the final value of the initial PQ RAB that will be calculated in 2022.

A139.2 forecast and actual pass-through costs and pass-through costs;

A139.3 forecast and actual Crown financing repayments.

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[248] Section 196.

[249] *Fibre Input Methodologies Determination 2020* [2020] NZCC 21, clause 3.7.1(4)(b).

Reasons for including pass-through costs

A140 This decision is necessary to implement the intent of the specification of price and revenues IM.[250] Pass-through costs are costs over which Chorus has little or no control, and that it is appropriate that end-users bear the cost of.

A141 As we have proposed compliance with the revenue path on a forecast basis, this requires an (annual) demonstrably reasonable forecast of pass-through costs, so that allowable revenue can be determined ex ante. However, this means that the value of pass-through costs recovered through the revenue path is subject to forecast error.

A142 Including a wash-up for any potential differences eliminates this risk on a present-value basis, meaning both FCM is maintained, and Chorus has no incentive to over-forecast pass-through costs (which would be contrary to s162(d)).

Reasons for including Crown financing repayments

A143 This decision is necessary to implement the intent of the cost of capital IMs.[251] Our intention with the adjustment for the benefit of Crown financing was that Chorus does not face any artificial incentive for early repayment in order to maximise returns, and that end-users receive benefit from Crown financing through lower prices.

A144 The benefit of Crown finance building block is based on a forecast repayment schedule. This may differ from actuals, and through this proposed wash-up Chorus' incentives remain neutral.

Reasons for not including wash-ups for other forecast inputs

A145 The table below lists all the major forecast inputs used in deriving allowable revenue, and briefly describes why we have or have not proposed a wash-up for them.

[250] Commerce Commission "Fibre input methodologies: Main final decisions – reasons paper" (13 October 2020), paragraph 9.30.

[251] Commerce Commission "Fibre input methodologies: Main final decisions – reasons paper" (13 October 2020), paragraph 3.234.

Table A1 Forecast inputs to allowable revenue

Factor	Washed-up	Mechanism	Rationale
Real WACC	No		Economic principle is *ex ante* RFCM.
Nominal WACC	Yes	Hedged against revaluation CPI	Required by IMs.
PQP1 return on/of initial RAB	Yes	Wash-up (AR side)	Maintains RFCM/limits excessive profits.
Enduring impact of initial RAB	Yes	PQP2 reset	Required by IMs.
Depreciation	Partial	PQP2 reset	Required by IMs.
Revaluation CPI	Yes	Hedged against nominal WACC	Required by IMs.
Real opex	No		Incentives to improve efficiency.
Real base capex	Partial	PQP2 reset	Incentives to improve efficiency.
Connection capex real unit cost	Partial	PQP2 reset	Incentives to improve efficiency.
Connection capex volumes	Yes	Wash-up (AR side)	Required by IMs.
Individual capex	Yes	Wash-up (AR side)	Required by IM.
Expenditure input price inflation	Partial	Hedged against revenue path CPI	Risk allocation, consistency with revenue path CPI.
Benefit of Crown financing rates	No		Consistency with IMs.
Benefit of Crown financing level/mix	Yes	Wash-up (AR side)	Consistency with IMs. Incentive framework.
Tax	Partial	Via recalculation of other factors	Tax building block "just follows" other building blocks.
Stranding allowance	No		Consistency with IMs.
Revenue path CPI	Partial	Annual updating	Risk allocation, consistency with input price inflation.
Pass-through costs	Yes	Wash-up (AR side)	Consistency with IM policy intent.
Demand forecasts	Yes	Wash-up (TFR side)	Required by section 196.

Attachment B Depreciation

Purpose and structure of this attachment

B1 The attachment sets out in detail our draft decisions on depreciation for Chorus' core fibre assets and financial loss asset.

B2 It covers:

B2.1 a high-level summary of our proposed approach to depreciation;

B2.2 the relevant aspects of our legal and economic framework that we have applied in making this decision;

B2.3 our draft decision and on the depreciation method (including the asset life) for Chorus' financial loss asset; and

B2.4 our draft decision on the asset life and depreciation method for Chorus' core fibre assets.

High-level approach

B3 The depreciation determines the amount of the RAB that Chorus can recover each year through regulated revenue. It is a material input to the forecast allowable revenue.

B4 Our draft decision is to apply an alternative depreciation for the financial loss asset and maintain the default GAAP depreciation for the core fibre assets.

B5 Our draft decision on the depreciation of the financial loss asset means that it can be recovered more quickly than under the default option. This has the effect of front-loading cost recovery, and thus it brings revenue forward in an NPV neutral way. This means that, compared to the default settings in the IMs,[252] Chorus will be able to recover more revenue in the shorter term and less revenue in the longer term, so end-users pay the same over the relevant period. In addition, the prices that end users pay during PQP1 are unlikely to be materially different from the previous year.

B6 Compared to default settings, our draft decision depreciates the financial loss asset over 14 years using a diminishing value (DV) method. As a result, it brings revenue forward by about $205m, and increases forecast allowable revenue for PQP1 from $1,855.8 to $2061.1m in present value terms.

[252] The default we have assessed our proposal against is depreciating the financial loss asset and core fibre assets using straight line depreciation over the life of the asset.

B7 We consider that applying an alternative depreciation approach for the financial loss asset is likely to better promote the purpose of Part 6. It promotes incentives to invest under s 162(a), it is NPV neutral (so does not lead to excessive profitability, consistent with s 162(d)), and is not inconsistent with what we would expect in a workably competitive market given Chorus' circumstances.

B8 This approach – based on our initial analysis – also has a positive side-effect that it contributes to mitigate potentially large revenue (and price) changes in future regulatory periods. This means it is consistent with a smooth transitioning of the regime.

B9 We have proposed DV as the depreciation method for the financial loss asset. While we consider that different depreciation methods could achieve the goal of bringing forward capital recovery, we have proposed DV because:

B9.1 it provides a gradual tapering-off of depreciation, rather than the sudden reduction in revenue at the end of the asset's life created by SLD; and

B9.2 it is well-understood by industry, and straight-forward to implement.

B10 Chorus has proposed 14 years as the asset life for the financial loss asset.[253] At this stage we have adopted this proposal.[254]

B11 As Chorus has only recently submitted its proposed depreciation approach, and we have had limited time to consider this, there are various combinations of depreciation approaches and assets lives we could use.[255] Ultimately, this decision is a matter of judgement about what best promotes the long-term benefit of end-users and workable competition. There is no precise answer, and we remain open to considering the alternative presented here, or others identified by stakeholders through submissions.

B12 Finally, we have taken into account that this is a three-year PQ path, and this decision can be revisited at the next price reset if we are satisfied – in light of further information – that a different depreciation method or asset life is appropriate in accordance with the IMs.

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[253] In the IAV model documentation prepared by Analysys Mason, Chorus outline the approach they have taken to determining the FLA life, and the model itself then calculates this as 14 years. This is essentially a weighted average asset life, where the weights are based on depreciation expense.

[254] We are consulting on as part of our consultation on Chorus' initial price quality RAB proposal. See Commerce Commission "Consultation on Chorus' initial price quality RAB proposal" (30 April 2021).

[255] On 17 May 2021, Chorus announced that it had proposed the use of a tilted depreciation approach. See here: https://w.nzx.com/announcements/372272

Framework for our draft decision

B13 The treatment of depreciation for PQ purposes is generally provided for in Part 3 of the fibre IMs. However, the IMs explicitly provide for the Commission to exercise its judgement about whether to apply an alternative depreciation method for some or all fibre assets when determining a price-quality path.[256]

B14 To do this, we have applied the legal and economic framework set out in Chapter 2 of this paper in respect of our draft decision on the GAAP depreciation method for core fibre assets. We have considered, in accordance with clause 3.3.2(5) of the IMs, whether the result of applying the DV method, an alternative depreciation method, would:

B14.1 better promote the purpose of Part 6;

B14.2 where relevant, best give or be likely to best give, effect to s 166(2)(b); and

B14.3 where relevant, be consistent with our smoothing of revenue under s 197.

B15 To support out analysis of what best promotes the statutory decision-making criteria, we have the principles of our economic framework.

Relevance of the purpose of Part 6

B16 We consider that s162(a) is most relevant to the choice of depreciation method. As we noted in the IMs main reasons paper, the choice of the depreciation profile is one way of managing asymmetric risks associated with asset stranding (along with the provision of an *ex ante* allowance, and allowing for the possible shortening of asset lives).[257] This clear allocation of stranding risk together with the flexibility to manage it, promotes incentives to invest efficiently (s162(a)).

Promotion of workable competition in telecommunications markets

B17 In addition to considering the purpose in s 162 of the Act, we are required under s 166(2)(b) to consider, where relevant, the promotion of workable competition in telecommunications markets for the long-term benefit of end-users of telecommunications services.

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[256] *Fibre Input Methodologies Determination 2020* [2020] NZCC 21, clause 3.3.2(5).

[257] Commerce Commission "Fibre input methodologies: Main final decisions – reasons paper" (13 October 2020), paragraphs 6.984.2 and 6.1022.

B18 As a result of applying our 'competition screening' approach, we do not think that these draft decisions are relevant for promoting competition for the long-term benefit of end-users. Therefore, we are not making this draft decision based on s 166(2)(b).

B19 Nevertheless, we consider that front-loading capital recovery is not inconsistent with what we would expect to observe in a workably competitive market. We would expect a firm in a workably competitive market to try to recover the financial loss asset as soon as possible by charging what the market can bear, within the constraints of competition.

B20 As we discuss below, fibre uptake, at over 60%, is relatively high compared to past expectations, and continues to grow. This higher uptake enables a faster recovery of the financial loss asset without causing price shocks to consumers (ie the market can probably bear faster recovery of the financial loss asset).

Smoothing revenues

B21 The effect of this alternative depreciation method is that Chorus' allowable revenues would be calculated in a manner that is equivalent in present value terms over 2 or more regulatory periods (we describe this manner of revenue calculation as "smooth revenues").

B22 In our main final decisions on the fibre input methodologies, we described our ability to smooth revenues over 2 or more regulatory periods by reference to s 197.[258] Section 197 is prescribed in the Act as a mandatory requirement if, in our opinion, it is necessary or desirable to do so to minimise any undue financial hardship to a regulated provider or to minimise price shocks to end-users.[259]

B23 We consider that we may also smooth revenues over 2 or more regulatory periods where we consider that this smoothing would best give (or be likely to best give), effect to the s 166(2) purposes as part of our specification of allowable revenues under s 194(2)(b)(ii) and s 195(1)(a). Our IM decision to allow for an alternative depreciation method to be applied for some or all fibre assets is an example of one mechanism that would allow us to smooth revenues over 2 or more regulatory periods.[260]

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[258] For example, Commerce Commission "Fibre input methodologies: Main final decisions – reasons paper" (13 October 2020), page 23, para 2.191-2.192, 3.294.2.4, 6.1101, 9.16.3, 9.27 and 9.43.

[259] Section 197.

[260] *Fibre Input Methodologies Determination 2020* [2020] NZCC 21, clause 3.3.2(5).

B24 Under clause 3.3.2(5) of the IMs, we may adopt an alternative depreciation method when determining allowable revenue, contrary to the default position where a GAAP consistent depreciation method must be applied, if we are satisfied that the result of applying the alternative depreciation method:[261]

B24.1 better promotes the purpose of Part 6 (clause 3.3.2(5)(a) of the fibre IMs));

B24.2 where relevant, best gives, or is likely to best give, effect to s 166(2)(b) (clause 3.3.2(5)(b) of the fibre IMs)); and

B24.3 where relevant, is consistent with our smoothing of revenue under s 197 (clause 3.3.2(5)(c) of the fibre IMs)).

B25 We do not consider that it is necessary or desirable to smooth revenues under s 197 to minimise any undue financial hardship to Chorus or to minimise price shocks to end-users. As our draft decision is to not smooth revenues under s 197, clause 3.3.2(5)(c) of the IMs is not a relevant consideration for us in assessing whether an alternative depreciation method can be applied for PQP1.

Economic principles

Risk allocation

B26 Ideally, we allocate risks to regulated providers or end-users depending on who is most able to manage the risk, unless doing so would be inconsistent with the Part 6 purposes. Appropriate risk allocation, and where relevant appropriate compensation for the risks carried, maintains incentives to invest and promotes efficient behaviour.

B27 As part of our IM decisions, we allocated the asymmetric risks associated with asset stranding to Chorus. We provided partial compensation for this risk through the 10bps allowance (broadly equivalent to $5.5m per year). We noted that the other tools to manage stranding risk include shortening asset lives and alternative depreciation profiles.[262] This clear allocation of stranding risk together with the flexibility to manage it, promotes incentives to invest efficiently (s162(a)).

[261] *Fibre Input Methodologies Determination 2020* [2020] NZCC 21, clause 3.3.2(5).

[262] Commerce Commission "Fibre input methodologies: Main final decisions – reasons paper" (13 October 2020), paragraphs 6.984.2 and 6.1022.

Ex ante expectation of a normal return

B28 We set our regulatory rules in a way that provides a regulated provider with an ex-ante opportunity to earn a normal return on capital. A normal return is the return on capital that an efficient firm has an ex-ante opportunity to earn in a workably competitive market. Allowing regulated providers the ex-ante opportunity, but not the guarantee, of earning normal returns provides them with a chance to maintain the financial capital they have invested, therefore maintaining incentives to invest.

B29 The stranding allowance mentioned above helps to provide Chorus with an expectation of earning a normal return in an environment of stranding risk. To the extent that this is insufficient, alternative depreciation and/or asset lives also support is providing this expectation which is important to promote investment.

Asset life of the financial loss asset

Our draft decision

B30 For our draft decision, as part of our alternative depreciation method, we have assumed an asset life of 14 years for the financial loss asset.

Requirements in the Fibre IMs

B31 As we discussed in the fibre IMs main reasons paper, the financial loss asset is a special case asset that combines various unrecovered returns incurred during the pre-implementation period.[263] We noted that, in determining the asset life over which to recover the financial loss asset, a logical starting point is the weighted average life of the UFB-related core fibre assets employed to provide FFLAS, which are the services in respect of which any financial losses were incurred. The default method determines the weights with reference to the initial RAB values of those UFB-related core fibre assets.

B32 The asset life of the financial loss asset is defined in clause 2.2.10(1)(d) of the IMs as being either:

B32.1 the period equivalent to the weighted average life of the UFB-related core fibre assets in an initial RAB as at the implementation date, where the weights used are the initial RAB values of those UFB-related core fibre assets; or

B32.2 a period adopted by the regulated provider under an alternative method.

[263] Fibre input methodologies: Main final decisions - reasons paper (13 October 2021), paragraph 3.287.

What are the options that we have considered?

B33 As we noted in the fibre IMs main reasons paper, the default method for determining the asset life of the financial loss asset is to estimate a weighted average asset life, where the weights used are the initial RAB values of the underlying core fibre assets used to supply UFB FFLAS.

B34 Under the default method set out in cl 2.2.10(1)(d)(i) of the IMs, the asset life for the financial loss asset reflects the significant investment under the UFB initiative in relatively long-lived assets such as ducts, manholes, poles, and fibre cables.

B35 Chorus has proposed an alternative method for setting the asset life of the financial loss asset. In our consultation paper on Chorus' initial PQ RAB proposal, we note that the approach proposed by Chorus does not appear to comply with cl 2.2.10(1)(d)(i) of the IMs, and that Chorus' proposal appears to weight asset lives with reference to the relative depreciation expense of the fibre assets, rather than the initial RAB values of the assets.[264] This results in a shorter asset life of approximately 14 years for the financial loss asset.

B36 We are seeking views on this approach as part of our consultation on Chorus' initial PQ RAB proposal. However, for the purpose of this draft decision, we have treated this as an alternative approach to depreciation under cl 3.3.2(5).

Our assessment of the options for the asset life for the financial loss asset

B37 Unlike physical assets, for which a useful life can be estimated, determining a period over which the value of the financial loss asset should be recovered will involve a considerable degree of judgement. There is no precise right answer.

B38 We specifically identified the financial loss asset as an asset for which we would look at a different asset life compared to the rest of the RAB.[265]

B39 As we explained in the fibre IMs main reasons paper, the financial loss asset is not a physical asset, but a special case asset that represents unrecovered returns resulting from building a new network ahead of demand. In this sense, the financial loss asset is a regulatory construct that capitalises historic losses and allows these to be taken into account when determining the regulated revenues that can be earned after the implementation date of the new regulatory regime.

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[264] Commerce Commission "Consultation on Chorus' initial price quality RAB proposal" (30 April 2021), paragraph 4.54.

[265] Commerce Commission "Fibre input methodologies: Main final decisions – reasons paper" (13 October 2020), paragraph 3.287.

B40 These features of the financial loss asset mean that it is a genuinely sunk cost with no alternative use. NERA characterise the financial loss asset as a capitalised historic cost, resulting in a forward-looking cost of zero.[266] This contrasts with core fibre assets, which are expected to continue to be available for use over a long period of time. In a workably competitive market, we would expect financial losses to be recovered as quickly as possible, subject to a constraint that faster recovery of such losses does not result in an adverse shock to prices that would limit the firm's ability to compete.

B41 In this regard, we note that the uptake of Chorus' bitstream FFLAS, which is currently 63% across Chorus' UFB-contracted areas (and 69% in UFB1 areas), is higher than expected:

B41.1 According to Chorus, "[t]he success of the fibre roll-out to date has exceeded all expectations, with uptake beyond what was expected and customers enjoying increased capacity without real-terms [sic] price increases."[267]

B41.2 Chorus' expenditure proposal also notes that the original UFB contracts "included an obligation to maximise uptake, with a target of achieving 20% uptake by 2020. The network build was a success and the pace of uptake has exceeded all expectations."[268]

B41.3 As we noted in the fibre IMs financial loss asset reasons paper, expectations at the start of the UFB initiative were that uptake may reach around 30% by 2019.[269]

B42 The high uptake and ongoing demand for UFB services indicates that faster recovery of the financial loss asset (as would be achieved by shortening the period over which recovery occurs) may be supported without raising the risk of price shocks for FFLAS consumers.

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[266] NERA "Frontloading depreciation to account for asset stranding risk" (12 May 2021), paragraph 32.

[267] Chorus "Response to Attachment A of the Commerce Commissions 13 May 2021 section 221 notice" (14 May 2021), paragraph 20.

[268] Chorus "Our Fibre Assets", page 2.

[269] Commerce Commission "Fibre input methodologies: Financial loss asset final decision - reasons paper" (3 November 2020), paragraph 3.298.1.

B43 The historic and sunk nature of the financial loss asset may also make it more vulnerable to any asset stranding risk that may exist in a market characterised by technological change and potential competition. It has no ability in and of itself to generate future revenue, whereas the core fibre assets have at least some probability of doing so. As we noted in the IMs, one of the tools at our disposal to mitigate asset stranding risk is to allow for the possible shortening of asset lives (in combination with other forms of compensation such as applying an *ex ante* allowance, retaining assets in the RAB, and allowing for the use of alternative depreciation profiles).[270]

A2 In our view, a shortened asset life for the financial loss asset is likely to maintain incentives to innovate and invest during the transition from the period during which UFB services were provided under contracts with the government to the new regulatory regime for FFLAS, and in doing so, best promote s 162(a) of the Act.

B44 Allowing for the faster recovery of the financial loss asset will partially alleviate concerns that the forecast allowable revenue determined for the first regulatory period should not curtail revenue growth or FFLAS uptake. We also note that any risk that Chorus would increase prices during this transition will be mitigated by the expected price cap on anchor services. In addition, any attempt to increase prices would heighten the threat posed by competing network operators (including the threat that evolving fixed wireless and mobile services might attract Chorus' copper customers who might otherwise have migrated to fibre).

B45 We also note that the asset life for the financial loss asset is one of the issues that we raised in our consultation on Chorus' initial RAB proposal.[271] We will take into account any submissions on that consultation, as well as on this draft, in finalising our view on the period over which to recover the value of the financial loss asset.

B46 The asset life that is applied to the recovery of the financial loss asset will determine the rate at which the financial loss asset is depreciated. For example, under simple straight-line depreciation, the depreciation rate is the inverse of the asset life, while under the diminishing value depreciation method, the depreciation rate will have an inverse relationship with the asset life such that the depreciation cost declines over time.[272] Any change in the asset life will affect these depreciation rates.

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[270] Commerce Commission "Fibre input methodologies: Main final decisions – reasons paper" (13 October 2020), paragraph 6.984.2.

[271] Commerce Commission "Consultation on Chorus' initial price quality RAB proposal" (30 April 2021), paragraphs 4.51 to 4.58.

[272] For example, the diminishing value depreciation rates in Inland Revenue's guidance are based on 2/asset life. Inland Revenue "General depreciation rates" (September 2020).

Depreciation method for the financial loss asset

Our draft decision

B47 Our draft decision is to apply a DV depreciation method to the FLA, using a depreciation rate of 14.3% as we are satisfied that the result of this method better promotes the purpose of Part 6, consistent with clause 3.3.2(5) of the IMs. As discussed, we do not consider that the requirements in clause 3.3.2(5)(b)-(c) are relevant for this decision.

Options considered

B48 We considered the following options:

- B48.1 straight-line depreciation: this method is GAAP consistent, and is the default method we have applied under the IMs;
- B48.2 tilted annuity (TA) depreciation applied to the financial loss asset and to core fibre assets that are subject to asset stranding risk (Chorus' proposal);
- B48.3 TA depreciation applied only to the financial loss asset (Chorus' 'pragmatic alternative'); and
- B48.4 DV depreciation applied only to the financial loss asset.

B49 Under the default setting in the IMs, both the financial loss asset and the core fibre assets are depreciated using a GAAP-consistent method. Our view is that SLD meets this criterion. Applying this approach results in depreciation charges that are constant over time.

B50 Chorus proposed two alternatives to the default – TA depreciation applied to the financial loss asset as well as to core fibre assets that are at risk of stranding; or an alternative approach which applies TA depreciation only to the financial loss asset (but using a larger tilt factor).

B51 An annuity combines an allowance for depreciation with the return on capital. Tilted annuities are consistent with the principles of financial capital maintenance.

B52 A standard annuity calculates the charge that recovers the asset's total purchase price and financing costs in annual sums that are constant over time.

B53 If the asset's market value is expected to change over time, a tilted annuity may be more appropriate. A tilted annuity calculates an annuity charge that changes between years at the same rate as the expected change of the asset value. This results in declining annualisation charges if asset values are expected to fall over time (ie: as may happen with technological change), or vice versa if asset values are expected to rise. Because of this feature, the tilted annuity approach approximates economic depreciation as annual charges are brought in line with the expected value of the asset at each time of its economic life.[273]

B54 As with a standard annuity, the tilted annuity should still result in charges that, after discounting, recover the asset's purchase price and financing costs.

B55 The DV method calculates the charge based on a constant percentage of the remaining asset value and results in a decreasing charge over the useful life (as the constant percentage is applied to a depreciating asset). Like TA depreciation, it provides the ability to adjust (front-load) the profile of recovery of the FLA. However it has the advantage of simplicity and being relatively easy to implement.

Our assessment of the options for depreciation methods for the financial loss asset

B56 In this section, we set out our preliminary views on the options outlined above in respect of the recovery of the financial loss asset.

Straight-line depreciation

B57 As noted above, straight-line depreciation allows for a constant recovery of capital over the life of the asset. Straight-line depreciation is a simple and widely-used approach to implement, and may be appropriate when usage of an asset is uniform from one year to another.

B58 However, in the case of the FLA, there are a number of reasons why it may be desirable to allow for a relatively fast recovery of the financial loss asset:[274]

B58.1 as discussed earlier, in a workably competitive market, we would expect the financial loss asset to be recovered as quickly as possible, subject to the constraint that faster recovery does not result in an adverse shock to prices which would worsen the competitive position of the firm. Given current

[273] Economic depreciation can be defined simply as the period-by-period change in the market value of an asset. The market value of an asset is equal to the present value of the income that the asset is expected to generate over the remainder of its useful life.

[274] There may also be circumstances in which it may be appropriate to defer recovery of the asset, for example where demand is initially low but expected to increase. For example, if we were looking at this issue when UFB uptake was very low, it might be appropriate to delay recovery to ensure that depreciation increased as demand increased. However, such deferral is less likely to be appropriate in the current situation, as UFB uptake is higher than expected.

market conditions and FFLAS uptake, there is an opportunity to achieve this without raising the risk of price shocks for FFLAS consumers;

B58.2 the use of a front-loaded depreciation profile for the financial loss asset reduces the prospect of a step change in the depreciation component at the end of the life of the financial loss asset. Unlike normal assets, which are replaced by new assets at the end of their life, once the financial loss asset is recovered, no new investment is required. As a result, at that point in time, there could be a significant reduction in regulated revenues under straight-line depreciation;

B58.3 given the sunk nature of the financial loss asset, it may be more prone to asset stranding than core fibre assets, particularly in a market characterised by technological change and evolving competition;

B58.4 in the transition to the new regulatory regime, it is important to maintain incentives for regulated providers to continue to invest in new connections (FFLAS uptake) and new services. In considering such incentives, there is likely to be a complex range of factors – for example, Chorus has the option of reducing prices to stimulate FFLAS uptake and is also likely to be motivated to invest in new connections and new services to the extent that it faces a threat from emerging competition. However, there is a risk that a materially lower allowable revenue than expected would put pressure on Chorus to cut efficient expenditure that benefits end-users in order to increase cashflow, even where this expenditure provided net benefits to Chorus in the longer term.

B59 We do not consider that any of the above arguments are individually definitive, but taken together, we consider that on balance they make a case for bringing forward revenues through the faster recovery of the financial loss asset, as this is likely to satisfy the relevant criteria in the IMs. While there will likely be some uncertainty over the rate of recovery of the financial loss asset, we now consider the alternatives outlined in the previous section.

Tilted annuity

B60 Under a tilted annuity approach, the profile of the recovery of capital can be adjusted (through the tilt rate) to better reflect expectations of the change in asset values over time.

B61 Chorus has proposed the use of a tilted annuity depreciation method. Chorus proposes that a tilted annuity be applied to both the financial loss asset, as well as to core fibre assets that it has identified as being subject to asset stranding risk (including but not limited to ducts, fibre cables and lead-ins, poles, and layer 2 electronics). Under Chorus' proposal, other assets, such as land, buildings, power equipment, and IT assets, would be subject to straight-line depreciation.

B62 Chorus proposes a 'conservative' tilt rate of -4%, referring to analysis by Incenta of long-term price trends for telecommunications services in New Zealand and overseas.[275] Incenta recommends using a real tilt rate of between -4% (based on historic trends in telecommunications services in New Zealand) to -6% (based on historic trends in wireless telecommunications services in the United States),[276] and that the tilts should be applied to all assets that are subject to a risk of being stranded.

B63 As a 'pragmatic alternative', Chorus proposes that a tilted annuity could be applied to the financial loss asset only, using a larger tilt to achieve the same outcome. Under this alternative, straight-line depreciation would be applied to all core fibre assets. Chorus submits that this would be a more pragmatic approach and easier to implement, as it would involve applying an alternative depreciation method to a single non-physical asset.[277]

B64 Chorus put forward a number of arguments in support of its proposal to apply a tilted annuity approach. According to Chorus, its proposed depreciation method would better address the asset stranding risk faced by Chorus from technology improvements in the telecommunications sector. It would also deliver a smooth transition from the pre-implementation period into the new regulatory regime by keeping prices broadly constant in real terms, and ensuring that Chorus has incentives to continue to invest in delivering fibre services to end users.

[275] Chorus "Response to Attachment A of the Commerce Commissions 13 May 2021 section 221 notice" (14 May 2021), paragraph 23.

[276] Incenta "Advancing the return of capital in relation to regulated fibre assets" (May 2021), paragraphs 10, 48, and 52.

[277] Chorus "Response to Attachment A of the Commerce Commissions 13 May 2021 section 221 notice" (14 May 2021), paragraph 26.

B65 Chorus claims that it "is making this depreciation proposal on the grounds that we have a material uncompensated economic asset stranding risk, which is expected to grow over time reflecting technology improvements in the telecommunications sector."[278] Chorus refers to evidence contained in expert reports by Incenta and NERA in support of its application, and says that its proposal is consistent with the *ex ante* allowance of 10 basis points which the Commission set in the IMs to compensate for asymmetric risks associated with asset stranding.[279] Chorus notes that in the fibre IMs main reasons paper, the Commission acknowledged that the 10 basis point allowance "was intended to address stranding risk that would not otherwise be addressed through other tools, such as an alternative depreciation profile."[280]

B66 Chorus notes that NERA identifies "a high risk of asset stranding for the financial loss asset and assets in the Wellington region" where Vodafone operates the HFC network.[281] NERA also claims to provide "new evidence of a growing competitive threat from fixed wireless, which has seen a significant marketing push and more aggressive sales goals from FWA providers since the IMs were determined."[282]

B67 Chorus notes that its proposal would only affect the timing of its future FFLAS revenues, and would be NPV neutral over time. As a result, it submits that its proposal would not lead to excess profits. It also claims that its proposal is consistent with the smoothing of prices under s 197 of the Act, and that if it were unable to bring forward depreciation, it would suffer a material revenue reduction at the start of the first regulatory period:[283]

> The lower than expected asset valuation and default MAR outcome creates an opportunity to address Chorus' residual asset stranding risk without increasing prices in real terms relative to the pre-implementation period. This will ensure we receive sufficient revenue to ensure price stability as we transition into the first regulatory period.

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[278] Chorus "Response to Attachment A of the Commerce Commissions 13 May 2021 section 221 notice" (14 May 2021), paragraph 16.

[279] Chorus "Response to Attachment A of the Commerce Commissions 13 May 2021 section 221 notice" (14 May 2021), paragraph 17.

[280] Chorus "Response to Attachment A of the Commerce Commissions 13 May 2021 section 221 notice" (14 May 2021), paragraph 38.1

[281] Chorus "Response to Attachment A of the Commerce Commissions 13 May 2021 section 221 notice" (14 May 2021), paragraph 32.

[282] Chorus "Response to Attachment A of the Commerce Commissions 13 May 2021 section 221 notice" (14 May 2021), paragraph 33.

[283] Chorus "Response to Attachment A of the Commerce Commissions 13 May 2021 section 221 notice" (14 May 2021), paragraph 18.

B68 We note that Chorus submitted its proposal to use a tilted annuity approach on 14 May 2021. We have therefore had limited time to fully consider Chorus' proposal and its potential implications.

B69 However, we have a number of observations on Chorus' proposed use of a tilted annuity approach.

B70 As discussed above, the tilted annuity approach is designed to approximate economic depreciation, where the depreciation charges vary with the asset's market value. However, unlike other physical assets, the financial loss asset has no market value other than us allowing for its recovery, so that matching economic depreciation does not provide a case for the tilted annuity approach.

B71 We also note that while the acceleration of depreciation of the financial loss asset will be NPV neutral, this may not be the case for Chorus' core fibre assets which are shared with other services such as copper-based services, where the allocation of shared costs varies over time.

B72 The tilted annuity approach is also more complex to implement than other forms of depreciation which allow a faster recovery of capital (such as the diminishing value approach discussed in the following section). The estimation of an appropriate tilt rate is an example of this additional complexity.

B73 On Chorus' proposed use of a tilt of -4%, we note that this is based on historical price trends for all telecommunications services in New Zealand. The underlying index appears to be the CPI – telecommunications services, which does not distinguish between fixed-line services (such as fibre) and wireless services. The US data reported by Incenta does provide separate price trends for fixed-line services and wireless services, and this indicates that the prices for wireless services have been declining considerably faster (with annual price changes of approximately -6% per annum) than for fixed-line services (approximately 0% to -2% per annum). Incenta submits that the price trend for wireless services "arguably is a better indicator of the competitors to Chorus."[284]

[284] Incenta "Advancing the return of capital in relation to regulated fibre assets" (May 2021), paragraph 52b.

B74 Although services provided over wireless networks may be an important source of competition for Chorus, we are not convinced that changes in prices for wireless services should determine the tilts to be applied in respect of Chorus' fibre assets. While this might be appropriate in the event that wireless and fibre services were found to be close economic substitutes for one another, Chorus itself notes that the experience during the COVID-19 pandemic has shown that "fibre has been more reliable than alternatives and that this is valued by consumers and businesses."[285]

B75 We also note that the emergence of new wireless technologies such as 5G are likely to increasingly depend on fibre infrastructure. For example, as higher frequency 'millimetre wave' spectrum becomes available, the small cell coverage required to deliver the capacity for high-speed fixed-wireless and mobile services using such spectrum will likely require increasing amounts of fibre connectivity between small cell-sites.

B76 In our view, this indicates that the tilts proposed by Incenta and Chorus are likely to be disproportionately weighted towards wireless services, and that a lower rate of change would be more appropriate were a tilted annuity approach to be implemented. This also illustrates the complexity associated with implementing a tilted annuity approach for the purposes of recovering the financial loss asset.

B77 We invite views on Chorus' proposal to apply a tilted annuity approach, including the option to apply a tilted annuity (using a lower tilt rate of -4%) to the financial loss asset and to core fibre assets that might be considered at risk of asset stranding, as well as Chorus' 'pragmatic alternative' approach to apply a tilted annuity to the financial loss asset only (but using a larger tilt rate).

Diminishing value

B78 Ultimately, we consider that DV depreciation and tilted annuity depreciation have many of the same benefits in terms of s 162(b). However, as an approach to bring forward the recovery of the financial loss asset, the diminishing value depreciation method has the advantage of simplicity and being relatively easy to implement.

B79 On balance, our preliminary view at this stage is that the diminishing value approach is an appropriate alternative depreciation method to apply to the recovery of the financial loss asset. It has a similar front-loading effect on the recovery of the financial asset as Chorus' proposal, but without the complexity.

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[285] Chorus "Response to Attachment A of the Commerce Commissions 13 May 2021 section 221 notice" (14 May 2021), paragraph 20.

B80 In terms of implementation, the standard approach is to use a depreciation rate that is determined by the asset life. For example, the diminishing value depreciation rates used by Inland Revenue are determined according to the formula 2/N, where N is the asset life. For an asset life for the financial loss asset of 14 years (see the discussion earlier in this attachment on the financial loss asset), this implies a depreciation rate of 14.3%. As noted earlier, a change in the asset life would result in a change to the diminishing value depreciation rate.

B81 As noted earlier, PQP1 is a three-year regulatory period, which will allow the depreciation method for the financial loss asset to be revisited at the next price reset. In the event that an alternative depreciation method were to be applied for PQP1, that method would become the default method for subsequent resets.[286] We could then consider whether that method remained appropriate, or whether we are satisfied that the result of applying a different depreciation method would be appropriate in accordance with clause 3.3.2(6) of the IMs

Our preliminary view on the depreciation method for the financial loss asset

B82 One the basis of the above, our preliminary view is that the diminishing value depreciation method should be applied to the financial loss asset, using a depreciation rate of 14.3%.

Draft decision on the depreciation method for core fibre assets

Draft decision

B83 We have proposed retaining the default approach to depreciation for core fibre assets. This approach involves applying straight-line depreciation (a GAAP compliant method) with unaltered asset lives.

B84 Chorus have proposed applying a tilted annuity approach to the core fibre assets that they consider at risk of asset stranding. As discussed above, we consider that applying alternative depreciation to the financial loss asset alone is sufficient to achieve the investment incentives we are seeking to promote under s162(a).

B85 As such, we do not consider that alternate depreciation for the core fibre assets would better promote the criteria in clause 3.3.2(5) than the default approach.

[286] Fibre Input Methodologies Determination 2020 [2020] NZCC 21, clause 3.3.2(7).

Attachment C Expenditure sub-categories

C1 The primary role of the capex IM is to mitigate over-spending and over-forecasting risks. Capex rules ensure PQ FFLAS end-users do not bear costs that reflect inefficient levels of investment expenditure, and that capex investments are consistent with a workably competitive market. This means the capex processes and rules address both the over-investment incentives and over-forecast risk.

C2 Where we have identified that capex categories have potential implications for promoting workable competition in telecommunications markets, we considered the specific expenditure sub-categories in light of the potential competition issues (eg, as is the case for competition in downstream markets).

C3 The following tables set out the standardised expenditure categories, and their definitions, for both operational and capital expenditure, relevant to asset management disclosures.

Table C1 Capital Expenditure Categories

Capex Category	Definition
Access	means networks that enable end user connections to the fibre network. They include ONTs and OLTs and the software which manages the configuration and alarms called an Element Management Platform;
Aggregation	means networks that link access networks to RSP POI. They consist of switches (rack-mounted equipment with interface cards) and the links between them;
Augmentation	means new address creation within the existing footprint of the network (infill) and extension work to extend coverage to communities outside the UFB contracts.
Business IT	means systems and applications across IT domains that support business activities.
Complex Installations	means design and build of installations for specific business requirements.
Extending the Network	means capital expenditure to extend communal infrastructure to new streets or developments, and to infill the network to accommodate address growth.
Field Sustain	means capital expenditure on physical network assets outside of network sites, such as poles, fibre, and terminators.
Installations	means capital expenditure to establish a physical link between the communal network and an optical network terminal (ONT) at an end point. It includes associated provisioning and incentive costs.
IT and Support	means capital expenditure on information technology systems, plus corporate capex.

Capex Category	Definition
Network & Customer IT	means capital expenditure on systems and platforms across IT domains that support network or customer activities. These include product development, customer experience and optimisation, lifecycle and compliance.
Network Capacity	means capital expenditure on network electronics and associated systems to optimise for capacity growth and lifecycle requirements.
Network Sustain and Enhance	means capex to sustain or enhance physical network performance, manage risk or satisfy compliance requirements. It includes replacing end of life assets, ensuring compliance to health and safety regulations, adding resilience to the network, reducing its risk profile and developing new products.
New Property Developments	means capex on work with developers to build communal fibre into new developments, such as residential subdivisions or office parks.
Relocations	means capex in relation to relocation of network assets arising from roading authority work programmes; undergrounding (overhead to underground (OHUG) programmes) and third-party requests
Resilience	means the ability to keep the network running through adverse events (diversity, robustness or contingency)
Site Sustain	means most install work, and associated investment in incentives.
Standard Installations	standard installations covers most install work, and associated investment in incentives.
Transport	means the transport network which provides high-capacity connectivity over long distances between aggregation nodes and OLTs. It consists of equipment supporting transmission links over core, transport and access cables.
UFB Communal	UFB communal covers contracted commitments with the government under the ultrafast broadband programme.

Table C2 Operating Expenditure Categories

Opex Category	Definition
Asset Management	means activities such as strategic planning, investment management and technology operations for the fibre network and supporting IT systems, and activities such as programme management, contract management, property operations, consent acquisition, network scoping, health, safety and environment, and process optimisation.
Corporate	sundry business operating expenditure for corporate functional units including accommodation, insurance and professional services.
Customer operations	means operating expenditure in relation to higher-volume demand-driven activity (such as call centres), lower-volume demand driven activity (such as coordinating complex installations and multi-unit extensions) and project work (such as managed migrations programmes).
Maintenance	means operating expenditure in relation to the network on reactive work (work to address an issue identified through a fault, alarm or inspection); recoverable work (work for which all or part of the cost can be recovered from another party); and preventative work (routine inspection works, including testing and survey).
Network Operations	means opex in respect of network operations and associated support resources. Network operations includes management of network electronics alarms, technical support and configuration services, and provision of network electronics equipment repair and return.
Product, Sales & Marketing	means opex directed at attracting and retaining end users and managing RSP relationships.
Technology	means the non-capitalised costs of operating business IT and customer and network IT systems – including licences, support and maintenance

Attachment D Base capex allowance

D1 The table below summarises our base capex evaluation by expenditure category.

Table D1 Base Capex evaluation by expenditure category

Expenditure category	Expenditure Sub-category	Focus area for assessment	Proposed expenditure ($m)	Proposed Allowance Amount (our decision) ($m)	Allowance adjustment ($m) (change)	Evaluation summary
Extending the Network	Augmentation		10.4	10.4	-	Not a focus area - subject to overall adjustment.
	New Property Developments		21.4	21.4	-	Not a focus area - subject to overall adjustment.
	UFB					
Installations	Communal		39.7	[redacted]	[redacted]	Not a focus area - subject to efficiency overall adjustment.
	Complex Installations	Yes	6.6	]		(see below).
				[redacted]	[redacted]	The difference between base capex and connections capex is due to installation activity associated with existing connections (eg upgrades).
	Standard Installations	Yes	95.4			Connections capex is only associated with new installations. The adjustment includes the removal of incentives for existing connections plus the impact of the updated demand forecasts.
IT and Support	Business IT		32.3	32.3	-	Not a focus area - subject to efficiency overall adjustment.
	Corporate	Yes	42.3	6.3	(36.0)	High risk that Chorus will not spend innovation capex. Specific projects have not been defined, therefore outputs and resulting efficiency cannot be demonstrated at this stage. Therefore, removed from base capex.

Expenditure category	Expenditure Sub-category	Focus area for assessment	Proposed expenditure ($m)	Proposed Allowance Amount (our decision) ($m)	Allowance adjustment ($m) (change)	Evaluation summary
	Network & Customer IT	Yes	76.2	75.2	(1.0)	Project specifics largely unspecified given timeframes for PQP1 and adoption of Agile process with Chorus. Key risks are in the delivery of developments within the period (due to constant pipeline testing within the BAU process) and therefore the timing of the realisation of any benefits is uncertain. Therefore, have not proposed a reduction in the proposed capex, but instead consider it reasonable for the investment to result in business efficiency improvements. Net capex for business benefits totals $67.3 million. Based on the Chorus model of benefits realisation, opex reductions have been estimated at $21.3m during PQP1. A small adjustment has been made to remove additions made by Chorus as variations to the 5-year plan.
Network Capacity	Access	Yes	71.7	71.7	-	Expenditure appears to be justified
	Aggregation	Yes	48.4	45.7	(2.7)	Adjusting traffic growth rate as per updated forecast reduces aggregation costs by 2.03 million. Chorus policy is to use a 60% utilisation as a trigger for upgrading equipment capacity. However, some equipment in the model have an increment threshold of 30%. It is unclear why this is used. Using a threshold of 60% for all ports in the model reduces the cost by approximately $0.89 million. Combined with adjusting traffic forecast, this leads to a total adjustment of $2.7 million.
	Transport	Yes	47.8	45.4	(2.4)	Reduction in latest (2020) MBIE dwelling consents forecasts expected to have an impact on transport costs, due to some residential developments being delayed or cancelled and thus some transport links are not be required.

Expenditure category	Expenditure Sub-category	Focus area for assessment	Proposed expenditure ($m)	Proposed Allowance Amount (our decision) ($m)	Allowance adjustment ($m) (change)	Evaluation summary
Network Sustain and Enhance	Field Sustain	Yes	63.1	61.2	(1.90)	The cost calculation is reasonable. However, the input assumptions involve a great deal of uncertainty which can potentially add up to a substantial amount. The expenditure cannot be assessed without further information on the derivation of fibre enclosure volumes (Flash), pole number estimates, and clarification for raising the pole failure rates in FY21 and FY22. Pole replacement rates (for fibre) are adjusted to 2.5% according to Chorus fibre assists sustain plan for PQP1.
	Relocations		13.0	13.0	-	Not a focus area - subject to overall adjustment
	Resilience		37.0	37.0	-	Not a focus area - subject to overall adjustment
	Site Sustain		36.8	36.8	-	Not a focus area - subject to overall adjustment
Regulatory over forecast adjustment			-	-	28.2[287]	Adjustment for the over-estimates included in the forecasts and variances to the 5-year business plan. We consider that this adjustment is likely mean the base case is closer to an efficient capex allowance, based on wider evidence.
Total			642.1	535.2	(106.9)	

[287] This amount is a Commission calculation based on assessment of available information.

Attachment E Baseline connection capex allowance

E1 The table below summarises our evaluation of the proposed connection capex and our draft decision.

Table E1 Connection capex evaluation

Expenditure category	Focus area for assessment	Proposed expenditure	Proposed Allowance Amount	Adjustment	Evaluation Summary
Connection capex baseline allowance	Yes	335.4	284.0	(51.4)	Reflects the updated demand forecast, the over forecast of unit costs and the removal of incentive payments for new connections.
Total		335.4	284.0	(51.4)	

Attachment F Opex allowance

F1 The table below summarises our evaluation of the proposed opex expenditure and our proposed draft decision.

Table F1 Opex evaluation by expenditure category

Expenditure category	Expenditure Sub-category	Focus area for assessment	Proposed expenditure ($m)	Proposed Allowance Amount ($m)	Proposed adjustment	Evaluation Summary
Customer	Customer operations		18.9	18.9	-	Not a focus area - subject to overall adjustment
	Product, Sales & Marketing	Yes	70.4	70.4	-	The expenditure is justified.
Network	Maintenance	Yes	91.3	82.3	(9.0)	Reduction applied for change in the demand forecasts. Removal of the unjustified pits and manholes expenditure.
	Network Operations	Yes	43.4	43.4	-	The expenditure is justified.
	Operating costs		23.3	23.3	-	The expenditure is justified.
Support	Asset Management		38.9	38.9	-	Not a focus area – subject to overall adjustment
	Corporate	Yes	144.6	122.8	(21.8)	Removed the estimated inefficiencies in the base year costs. Removal of a proportion of the self-insurance increases.
	Technology		57.0	57.0	-	Not a focus area - subject to overall adjustment.
Overall efficiency adjustment					(21.30)	Adjustment to reflect the expected benefits from IT capex investments.
Total			487.8	435.6	(52.1)	

Attachment G Incentive payments

G1 This attachment outlines two preliminary thresholds Chorus must meet before the Commission can assess incentive payments as part of an individual capex proposal. It also outlines our indicative approach to assessing incentive payments as part of an individual capex proposal (in addition to the requirements in the capex IM).

G2 Chorus has proposed $44.4m expenditure on incentive payments over PQP1. Chorus uses these payments to increase both:

G2.1 the quantity of new fibre connections (eg, through migration of customers to the fibre network), and

G2.2 the intensity of usage of the network by existing customers (eg by up-selling existing end-users to higher speed plans).

G3 If the two preliminary thresholds are met, we would then apply the following test when assessing incentive payments:

G3.1 is there evidence to show that the expected incremental revenues exclusively from the incremental end-users outweigh the incremental costs?

G4 We set out the preliminary threshold questions and our reasons for proposing the indicative assessment approach below. We welcome stakeholders' views.

Preliminary question 1: do the proposed incentive payments comply with the geographically consistent pricing requirement under s 201?

G5 Section 201 provides that Chorus, as a regulated provider subject to PQ regulation, must charge the same price for providing FFLAS that are in all material respects the same, regardless of the geographic location of the access seeker or end-user.

G6 Section 164(1)(b) defines price as including "any related terms of payment". We consider this broad definition includes incentive payments. Incentive payments must therefore meet the geographic consistency requirement under section 201.

G7 As such, in any individual capex proposal, Chorus will need to satisfy the Commission that its proposed incentive payments comply with this requirement for geographically consistent pricing.

Preliminary question 2: do the costs Chorus incurs in making incentive payments to obtain contracts with RSPs meet the definition of "capex"?

G8 If Chorus can satisfy preliminary question 1, the second preliminary question is whether the costs Chorus incurs in making incentive payments to acquire new contracts with RSPs meet the definition of "capex" under the IMs.

G9 "Capex" is defined as costs that (a) have been, or are intended to be, incurred in the acquisition or development of a core fibre asset or UFB asset that is, or is intended to be, commissioned; and (b) are eligible, or would be eligible to be included in the value of commissioned asset.

G10 A "core fibre asset" is defined as a fibre asset that is employed in the provision of regulated FFLAS (whether or not the asset is also employed in the provision of other services), and excludes the financial loss asset; intangible assets, unless they are finance leases; or identifiable non-monetary assets whose costs do not include (wholly or partly) pass-through costs.

G11 Incentive payments are costs that Chorus incurs in acquiring new contracts. These are referred to in Chorus' annual report as "customer retention costs". Their treatment in Chorus' accounts is described as follows:[288]

> Customer retention costs are incremental costs incurred in acquiring new contracts with new and existing customers that Chorus expects are recoverable and are capitalised as customer retention assets. Following initial recognition, customer retention assets are stated at cost less accumulated amortisation and impairment losses. Customer retention assets have a finite life and are amortised from the month that costs are capitalised on a straight-line basis over the average connection life which is as follows:
>
> New connections and migrations: 0-4 years
>
> Customer incentives: 1 year.

G12 The relevant GAAP standard is NZ IFRS 15: Revenue from Contracts with Customers. It provides that the incremental costs of obtaining a contract with a customer shall be recognised as an asset, if the entity expects to recover those costs:

> Incremental costs of obtaining a contract
>
> 91 An entity shall recognise as an asset the incremental costs of obtaining a contract with a customer if the entity expects to recover those costs.
>
> 92 The incremental costs of obtaining a contract are those costs that an entity incurs to obtain a contract with a customer that it would not have incurred if the contract had not been obtained (for example, a sales commission).
>
> 93 Costs to obtain a contract that would have been incurred regardless of whether the contract was obtained shall be recognised as an expense when incurred, unless those costs are explicitly chargeable to the customer regardless of whether the contract is obtained.
>
> 94 As a practical expedient, an entity may recognise the incremental costs of obtaining a contract as an expense when incurred if the amortisation period of the asset that the entity otherwise would have recognised is one year or less.

[288] Chorus "Annual Report 2020".

G13 Incentive payments are not “operating costs” within the definition of the IM determination. The definition of operating cost excludes “a cost that is treated as a cost of an asset by GAAP”.

Do the costs Chorus incurs in obtaining the contracts constitute "capex"?

G14 Looking to the definitions of “capex” and "core fibre asset" respectively, the relevant questions are:

G14.1 whether the costs of incentive payments have been, or are intended to be, incurred in the acquisition of a “core fibre asset”; and in turn

G14.2 whether the contracts that Chorus obtains through incentive payments constitute “core fibre assets”, ie, whether they are employed (meaning "available for use") in the provision of regulated FFLAS.

G15 The answers to these questions will involve a fact-specific enquiry dependent on the terms of the particular incentive payment. They will be determined on a case-by-case basis with reference to Chorus’ individual capex proposal.

Indicative assessment approach: Incentive payments can benefit end-users in the long term (promote s162)

The principled approach is to apply the risk allocation principle

G16 The appropriate lens to approach this issue from a s162 perspective is the risk allocation principle (one of our three economic principles). This principle has been expressed as balancing the limbs of s162(a)-(d) and is relevant to this context.[289]

G17 Chorus is better able to manage the demand risk than consumers, as incentive payments are one of the tools Chorus has to influence demand of existing consumers, and to grow the business. Ideally Chorus should be free to choose whether to make incentive payments, and ideally it should bear/enjoy the downside/upside risk.

G18 The downside risk is that the end-user may switch away before Chorus recovers the investment (ie payment and other associated costs). The upside risk should be that Chorus recoups the investment plus a risk-adjusted return (which may be higher than the WACC).

[289] Commerce Commission “Fibre input methodologies – Draft decision paper“(19 November 2019), paragraphs 2.179 - 2.185.

G19 This is consistent with s162(b) as it provides Chorus with an incentive to manage demand risk through incentive payments efficiently. This avoids a potential moral hazard whereby Chorus takes excessive risks—excessive incentive payments in this context—if it knows it will recover the costs from end-users regardless of the success of the incentive payments in growing demand.[290]

But the regime seems to preclude us from implementing the principled approach

G20 The problem is that the practical implementation of the regime does not seem to allow us to follow the principled approach. This is because:

G20.1 The combination of accounting standards (NZ IFRS 15) together with the Telecommunications Act (s177(6)) and the asset valuation IM (clause 2.2.13) results in incentive payments being capitalised, which removes risk exposure for Chorus, as they enter the RAB and are recovered from end-users; and

G20.2 There is a revenue cap set ex-ante, which in principle is incompatible with exposing Chorus to demand risk.

G21 In the time available, we have not explored extensively whether there are options available which mimic the risk allocation we would like.

So we propose a pragmatic way forward – scrutinise as part of individual capex

G22 A pragmatic solution for PQP1 is to scrutinise the proposed expenditure ex ante, provided we are satisfied based on information Chorus provides that the threshold preliminary questions above are satisfied.

G23 The disadvantages of this treatment are that:

G23.1 it allocates risk to end-users (even though Chorus is better able to manage it), as the prices they pay in the longer term may be higher or lower depending on the level of the incentive payments, and on whether the incentive payments are successful in attracting and/or upselling end-users; and

G23.2 it also exposes end-users to the risk that Chorus over-states the level of incentive payments and/or that end-users pay for forecast incentive payments that are not made (creating a risk that Chorus would earn excessive profits).

[290] Moral hazard refers to a situation where a party will tend to take risks because the costs that could result will not be borne by that party.

G24 By including incentive payments as a cost in the BBAR, under a revenue cap (which is a guaranteed revenue mechanism unless the wash-up is set otherwise, or we deregulate) existing end-users pay extra in the hope that they will pay less in the future should those incentive payments grow demand greater than would otherwise be the case. This means that end-users bear all the demand risk. All other things being equal, existing prices to existing consumers would be higher than otherwise.[291]

G25 The above risks are partially mitigated by treating proposed incentive payments as individual capex. This allows a greater degree of scrutiny of proposed incentive payments to ensure they are not excessive, over-stated or anti-competitive, and requires Chorus to ring-fence and report on them separately.

G26 Therefore, we have excluded the proposed expenditure from the connection capex baseline allowance and from the base capex allowance, thus encouraging Chorus to submit an individual capex proposal instead.

G27 As noted at G22 above, Chorus would need to provide information as part of its individual capex proposals to demonstrate that the threshold preliminary questions are satisfied.

Which we think can still promote s162

G28 If the preliminary thresholds are met, we think that treating incentive payments as capex and scrutinising it ex-ante can promote s162, if not as much as the principled approach.

G29 Chorus' use of incentive payments can promote the purpose of s162. The main one being that fixed network costs are recovered over more fibre end-users,[292] this results in lower average prices (which can be efficiency-enhancing to the extent that prices are closer to marginal cost, s162(b)).

G30 This should be the case where the incremental revenue outweighs the incremental cost.

[291] Note that the end-users that switch pay less initially as they receive the incentive payment. In the longer term, the average price for end-users should be lower (other things equal) to the extent that the incremental costs (eg incentive payments) are lower than the incremental revenues from additional end-users (or end-users in higher spec products).

[292] In the case up-selling existing fibre connections, some end-users willingly pay more (ie those that upgrade), which means that the rest of end-users likely pay less, achieving a similar outcome.

G31 However, much like any ex-ante expenditure allowance which feeds through to higher allowed revenue, Chorus is free not to spend it, which would result in higher average prices without the offsetting effect of more end-users to spread the costs (not promote s 162 (b), (c) and (d)).

G32 We can mitigate this risk through reporting as part of the individual capex requirements. Furthermore, the likelihood of this risk materialising in PQP1 seems low since Chorus has revealed a strong interest in attracting end-users to its fibre network. Also, Chorus mentioned it has a contractual commitment with the Crown as part of the UFB rollout to maximise uptake on its network.[293] Finally, since we should only approve a level of incentive payments that yields positive net benefit to Chorus (ie expected incremental benefits greater than incremental costs), it should have an incentive to undertake the payments.

G33 We should re-assess this risk (inflating incentive payments at reset stage and under-spending during the period) from PQP2 onwards, as the fibre network approaches saturation. A simple possible way forward may be to treat these incentives as price discounts (revenue reductions) which can be included in the revenue wash-waup (up to a cap).[294]

Indicative assessment approach: Incentive payments can be pro or anti-competitive

G34 This is a type of expenditure that we indicated in the final IMs decision was relevant to s166(2)(b) competition screening (para 2.38) and gave rise to potential competition concerns (para 7.146).

[293] Network Infrastructure Project Agreement, Chorus Limited and Crown Fibre Holdings Limited, Schedule 2 Commitments.

[294] Subject to this being possible given the legal and accounting constraints.

G35 We also identified incentive payments as a risk to competition in our competition survey's companion paper.[295] In its submission, Spark stated concern about:

> …the market distorting effect of incentive payments made to RSPs to win over specific customers from alternative access providers. These payments have a direct and indirect effect on the performance of retail markets. Chorus can readily embark on a strategy of pricing below cost in a distortionary manner, with targeted incentive payments acting as a form of market discipline against competing infrastructure players, as the regulatory framework ensures these costs are recovered over regulatory periods. As set out in the paper, ID and PQ tools have a role to play in setting the rules and processes for preventing and unwinding such conduct. The Commission could, for example, refuse to allow incentive payments to be included in Chorus' expenditure proposal.[296]

G36 These payments are consistent with behaviour we expect in workably competitive markets. However, the level of the payments, if excessive, can be anticompetitive. Chorus may have an incentive to excessively use these payments in an anti-competitive way. The extent to which it has the ability to do so is influenced by our regulation.

G37 Chorus' use of incentive payments must comply with the non-discrimination obligations, which aim to deter anti-competitive behaviour.[297] These obligations (ex-ante), together with competition law (ex-post) mitigate to some extent risks to competition.

G38 The task before us is assessing the proposed incentive payments from a PQ path setting perspective. We have established that putting a 'competition lens' to this task is relevant. However, the setting of the PQ path is a blunt tool to mitigate competition risks: broadly, it can only approve an expenditure allowance that flows through to allowed revenue (in addition to quality and ID requirements). Chorus is then free to spend/discount as it sees fit (within the above-mentioned constraints). The individual capex rules do allow for ring-fencing specific expenditure so it can be separately reported on and monitored.

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[295] Commerce Commission "Promoting competition in telecommunications markets as part of fibre information disclosure (ID) and price-quality (PQ) regulation – companion paper" (4 February 2021), page 20.

[296] Spark "Survey on Promoting competition in telecommunication markets as part of ID and PQ regulation" (25 February 2021), pages 1 & 2.

[297] Commerce Commission "Equivalence and non-discrimination – guidance on the Commission's approach for telecommunications regulation" (30 September 2020).

G39 Therefore, the assessment from a PQ perspective is about the merits of approving incentive payments in the first place, their quantum, and any associated reporting requirements if done as part of an individual capex proposal. Note that any additional reporting requirement should consider what we are already proposing under ID – namely that where products that have active discounts, promotions or incentives, there will be a requirement to disclose a description of the discount or promotion, the number of connections, monthly incentive, one off incentives and recurring monthly incentives.

G40 To consider whether Chorus' proposed incentive payments may harm competition, we have examined whether the incentive payments have the intent or effect of lessening competition.

G41 As mentioned, we could expect incentive payments to be a feature of a workably competitive market as a way for firms to attract new customers, who in turn benefit from lower effective prices (ie, the price they pay minus the incentive payment they receive).

G42 We would expect that, if a rational, profit maximising firm engages in this behaviour, it does so only where it expects to benefit from it in the longer term. That is, where it expects to eventually recoup its initial 'investment' to win new customers (ie the expected incremental revenues outweigh the incremental costs).

G43 We should be concerned where the 'recoupment strategy' relies on expected higher future prices that result from a lessening of competition as a result of its incentive payments.

G44 We should also be concerned where the recoupment strategy relies on the regulator allowing Chorus to recover the incremental costs (ie, allowing incremental revenues) from the whole of the 'captive' customer base over which it enjoys significant market power, irrespective of the incremental revenues derived from the customers that receive the incentive payment (ie, those that switch). We should be less concerned otherwise.

G45 In other words, we should ask the question: would the incentive payments make economic sense in the absence of any harm to competition or regulatory effects? If the answer is yes, then these payments are likely pro-competitive. If the answer is no, then they may represent exclusionary conduct which harms competition.

G46 Applying the proposed test should help us answer that question. That is, is there evidence to show that the expected incremental revenues exclusively from the incremental end-users outweigh the incremental costs?

G47 The above test can be applied to the aggregate, average or specific incentive payments. To pass the test, Chorus would have to show that the proposed incentive payments are at a level that provide it with an expectation of incremental net benefits, without relying on an expectation of future higher prices (which could result from a lessening of competition), nor do they rely on the regulator allowing the recovery of the incremental costs (ie, allowing incremental revenues) from the whole of the 'captive' customer base (rather than from the incremental end-users).

G48 We have some concerns regarding specific incentive payments we are aware of, such as the credit of up to $800 if a copper customer is signed up to 1G or Hyperfibre. Chorus' assumption for PQP1 is that incentive payments are between [redacted].]The net benefits at these levels are between [redacted]]It appears unlikely that an incentive of $800 would provide a net benefit holding the rest of the assumptions constant.

G49 The theory of harm in this case would be that Chorus is not expecting a net benefit from these incentive payments, but is relying on these costs making their way into the RAB, and recovering them from the whole customer base. This would fail the proposed test.

G50 Treating these payments under an individual capex proposal would give us the ability to ex-ante scrutinise incentive payments at this more granular level (noting that ex-post Chorus is free to spend as it sees fit within the other constraints such as non-discrimination) and require Chorus to report on that basis.

Attachment H WACC estimate for Chorus' draft price-quality path

Purpose of this attachment

H1 This determination specifies the weighted average cost of capital (WACC) estimate that will apply to Chorus' price-quality path for our draft decisions. The WACC estimation will be updated and published for our final decisions on Chorus' price-quality path by 30 June 2021 (calculated as at 1 June 2021).

H2 The only parameter that will change between this WACC determination for the draft price-quality decisions and our final price-quality decisions is the risk-free rate. The average debt premium calculated as at the 1 June will not have enough data to be updated for debt premium reference year (DPRY) 2022.

WACC estimate applying to our draft price-quality path decisions

H3 The vanilla and post-tax WACC estimates for disclosure year 2021 are summarised in Table H1 below. Note that unlike in Part 4 sectors the mid-point WACC estimate applies to FFLAS providers for price-quality regulation.

Table H1 Vanilla and post-tax WACC estimates (%)

Parameter	Mid-point
Vanilla WACC	4.66
Post-tax WACC	4.46
Standard error	1.31

H4 This estimation should be read in conjunction with our guidelines for estimating the WACC under the Fibre cost of capital input methodologies.[298] These guidelines form part of this determination. The guidelines explain our methodology for calculating WACC estimates, including

H4.1 the formulas used;

H4.2 the values for WACC parameters which are fixed under the input methodologies; and

H4.3 our methodology for determining the risk-free rate and average debt premium.

[298] *Fibre Input Methodologies (initial value of financial loss asset) Amendment Determination 2020* [2020] NZCC 24, clauses 3.5.1 to 3.5.5.

Further details regarding the WACC estimate

WACC parameter values for Chorus

H5 The parameter values used to generate the mid-point WACC estimates for Chorus' draft price-quality path are set out in Table H2 below.[299]

Table H2 Values used to calculate WACC estimates

Parameter	Estimate
Risk-free rate	0.43%
Average debt premium[300]	1.70%
Leverage	29%
Asset beta	0.50
Equity beta	0.7
Tax-adjusted market risk premium	7.5%
Average corporate tax rate	28%
Average investor tax rate	28%
Debt issuance costs	0.33%
Cost of debt	2.46%
Cost of equity	5.56%
Standard error of WACC	0.0131
Mid-point vanilla WACC	**4.66%**
Mid-point post-tax WACC	**4.46%**

Risk-free rate

H6 The risk-free rate reflects the linearly interpolated, annualised, bid yield to maturity on New Zealand government bonds with a term to maturity of three years (the length of the first regulatory period). Our estimate of the risk-free rate is based on data reported by Bloomberg for the three-month period ending 31 March 2021 based on the April 2023 and April 2025 maturity bonds.

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[299] All parameter values except the estimate of the risk-free rate and the average debt premium are set in the cost of capital input methodologies. The methodologies for calculating the risk-free rate and debt premium are set out in the cost of capital input methodologies.

[300] S&P target credit rating BBB.

H7 The daily data reported by Bloomberg is annualised (to reflect the six-monthly or quarterly payment of interest), linearly interpolated and averaged to produce the estimate of a 0.43% interest rate on New Zealand Government bonds with a three-year term to maturity as at 1 April 2021.[301]

Average debt premium

H8 The average debt premium of 1.70% is the historical five-year average of the debt premium values for the current DPRY and the four previous DPRYs, as shown in Table H3 below. DPRY 2021 is the most recent debt premium reference year for regulated FFLAS providers.[302] The debt premium estimates are based on a target S&P credit rating of BBB and term to maturity of five years for FFLAS providers.

Table H3 Average debt premium for FFLAS suppliers (%)

	DPRY 2017	DPRY 2018	DPRY 2019	DPRY 2020	DPRY 2021	Average
Debt premium	1.70	1.75	1.65	1.70	1.70	1.70

H9 As this is the first WACC determination for FFLAS providers, we must retrospectively estimate the historical debt premium estimates to calculate the five-year historical average.[303] A summary of the data used and how we have applied our judgement in determining the debt premium are outlined for each DPRY below.

DPRY 2017

H10 We estimated a debt premium of 1.70% for the 2017 DPRY based on the data in Table H4 below.

[301] Note that the target term to maturity for the risk-free rate and debt premium are different for the first regulatory period (the risk-free rate has a term equal to the length of the regulatory period, i.e., 3 years for the first regulatory period, and the debt premium has a 5 year term). For more information see the cost of debt section of the Fibre IM final reasons paper: Commerce Commission "Fibre input methodologies: Main final decisions – Reasons paper" (13 October 2020), paras 6.81 to 6.264.

[302] The 'current debt premium reference year' refers to the debt premium reference year (DPRY) that contains the start of the relevant disclosure year. The Fibre DPRY 2020 starts on 1 September 2019 and ends on 31 August 2020. The IMs state that the calculation of the debt premium for the DPRY is estimated for each business day in the 12 months preceding the start of the debt premium reference year. Therefore, for the DPRY21 debt premium estimation, the bond data used in the determination starts on 1 September 2019 and ends on 31 August 2020.

[303] One issue we had in retrospectively estimating the debt premiums was changing credit ratings over time. This impacts the weighting that we would apply to the debt premium observation in relation to the target credit rating (of BBB). We have aimed to mitigate this by using the credit rating for each comparator in the DPRY as at the end of each DPRY (for example, the Wellington Airport bond changes from S&P rating BBB+ to BBB effective 15/6/2020, so the bond would be classified as BBB+ by the end of DPRY 2019 and changes to BBB by the end of DPRY 2020).

H11 For the DPRY 2017 determination there are a lack of category (a) and (b) bonds which we would generally give most regard to in our debt premium determination. There was only one category (c) bond (Contact Energy) which has the target credit rating and remaining term to maturity. We have given most regard to this bond in our determination of the debt premium.

H12 The estimated debt premiums for other issuers in bond categories (e) and (f) are not inconsistent with a debt premium of approximately 1.70%, when consideration is given to the different credit ratings and terms to maturity.

H13 The Nelson-Siegel-Svensson (NSS) estimate of the debt premium of 1.66% also lends support to our debt premium determination of 1.70%.[304]

Table H4 DPRY 2017 bond data

Details of benchmark bond

	Sector	100% Govt owned	Bond credit rating	Remaining term to maturity (years)	Debt premium (%)
	Fibre	No	BBB	5.0	1.70

Debt premiums ordered by bond categories specified in the IMs

Bond category	Issuer	Sector	100% Govt owned	Bond credit rating	Remaining term to maturity (years)	Debt premium (%)	Notes reference
c	CONTACT ENERGY LTD	Other	No	BBB	5.0	1.70	*1*
e	AUCKLAND INTL AIRPORT	Airport	No	A-	5.0	1.20	*2*
e	FONTERRA COOPERATIVE G	Other	No	A-	5.0	1.44	*3*
e	GENESIS ENERGY LTD	Other	No	BBB+	5.0	1.64	*4*
e	MERCURY NZ LTD	Other	No	BBB+	5.0	1.64	*5*
e	SPARK FINANCE LTD	Telco	No	A-	5.0	1.32	*6*
e	WELLINGTON INTL AIRPOR	Airport	No	BBB+	4.3	1.50	*7*
f	CHRISTCHURCH INTL AIRP	Airport	Yes	BBB+	5.0	1.55	*8*
f	TRANSPOWER NEW ZEALAND	Other	Yes	AA-	5.0	1.05	*9*
Nelson-Sigel-Svensson (NSS) estimate					5.0	1.66	

Notes on bonds analysed

1 CENNZ 5.277 05/27/20; CENNZ 4.4 11/15/21
2 AIANZ 5.52 05/28/21; AIANZ 4.73 12/13/19; AIANZ 4.28 11/09/22
3 FCGNZ 5.52 02/25/20; FCGNZ 4.33 10/20/21
4 GENEPO 8.3 06/23/20; GENEPO 5.81 03/08/23
5 MCYNZ 8.21 02/11/20; MCYNZ 5.793 03/06/23
6 SPKNZ 5 1/4 10/25/19; SPKNZ 4 1/2 03/25/22
7 WIANZ 5.27 06/11/20
8 CHRINT 5.15 12/06/19; CHRINT 6 1/4 10/04/21
9 TPNZ 6.95 06/10/20; TPNZ 4.3 06/30/22

DPRY 2018

H14 We estimated a debt premium of 1.75% for the 2018 DPRY based on the data in Table H5 below.

[304] We place primary weight on our hierarchy of bonds and use the NSS approach as an additional tool to provide an objective estimate of the term structure to determine the debt premium. For more information on the NSS approach, see Commerce Commission "Fibre input methodologies: Main final decisions – reasons paper" (13 October 2020), Attachment G.

H14.1 We have had greatest regard to the category (a) Chorus bond, which supports a debt premium of approximately 1.75%. The Chorus bond has the target credit rating and sector but the remaining term to maturity is slightly lower than the target of 5 years. Therefore, we would expect the target bond to have a slightly higher debt premium than 1.71%, supporting our determination of 1.75%.

H14.2 The category (c) Contact Energy and Vector bonds' debt premium estimates match the target credit rating (BBB) but the remaining term to maturity does not match the target of 5 years. Therefore, we can adjust the debt premium estimates to reflect what we would expect a 5-year term to maturity bond to exhibit.

H14.3 The estimated debt premiums for other issuers in bond categories (e) and (f) are not inconsistent with a debt premium of approximately 1.75%, when consideration is given to the different credit ratings and terms to maturity.

H14.4 The NSS estimate of the debt premium of 1.74% also supports our debt premium determination of 1.75%.

Table H5 DPRY 2018 bond data

Details of benchmark bond

	Sector	100% Govt owned	Bond credit rating	Remaining term to maturity (years)	Debt premium (%)
	Fibre	No	BBB	5.0	1.75

Debt premiums ordered by bond categories specified in the IMs

Bond category	Issuer	Sector	100% Govt owned	Bond credit rating	Remaining term to maturity (years)	Debt premium (%)	Notes reference
a	CHORUS LTD	Fibre	No	BBB	4.2	1.71	*1*
c	CONTACT ENERGY LTD	Other	No	BBB	4.7	1.59	*2*
c	VECTOR LTD	EDB/GPB	No	BBB	6.8	2.01	*3*
e	AUCKLAND INTL AIRPORT	Airport	No	A-	5.0	1.25	*4*
e	FONTERRA COOPERATIVE G	Other	No	A-	5.0	1.55	*5*
e	GENESIS ENERGY LTD	Other	No	BBB+	5.0	1.61	*6*
e	MERCURY NZ LTD	Other	No	BBB+	5.0	1.66	*7*
e	MERIDIAN ENERGY LIMITE	Other	No	BBB+	6.0	1.62	*8*
e	SPARK FINANCE LTD	Telco	No	A-	5.0	1.43	*9*
e	WELLINGTON INTL AIRPOR	Airport	No	BBB+	3.3	1.56	*10*
f	CHRISTCHURCH INTL AIRP	Airport	Yes	BBB+	4.6	1.63	*11*
f	TRANSPOWER NEW ZEALAND	Other	Yes	AA-	5.0	1.15	*12*
Nelson-Sigel-Svensson (NSS) estimate					5.0	1.74	

Notes on bonds analysed

1 CNUNZ 4.12 05/06/21
2 CENNZ 4.4 11/15/21
3 VCTNZ 4.996 03/14/24
4 AIANZ 5.52 05/28/21; AIANZ 4.28 11/09/22
5 FCGNZ 5.9 02/25/22; FCGNZ 4.33 10/20/21; FCGNZ 5.52 02/25/20; FCGNZ 4.42 03/07/23
6 GENEPO 4.14 03/18/22; GENEPO 8.3 06/23/20; GENEPO 5.81 03/08/23
7 MCYNZ 8.21 02/11/20; MCYNZ 5.793 03/06/23
8 MERINZ 4.53 03/14/23
9 SPKNZ 4 1/2 03/25/22; SPKNZ 5 1/4 10/25/19; SPKNZ 4.51 03/10/23
10 WIANZ 5.27 06/11/20
11 CHRINT 6 1/4 10/04/21
12 TPNZ 4.3 06/30/22; TPNZ 6.95 06/10/20; TPNZ 5.448 03/15/23

DPRY 2019

H15 We estimated a debt premium of 1.65% for the 2019 DPRY based on the data in Table H6 below.

H15.1 We have had greatest regard to the category (a) Chorus bond, which supports a debt premium of approximately 1.65%. The Chorus bond has the target credit rating and sector but the remaining term to maturity is lower than the target of 5 years. Therefore, we would expect the target bond to have a higher debt premium than 1.57%, supporting our determination of 1.65%.

H15.2 The category (c) Contact Energy and Vector bonds' debt premium estimates match the target credit rating (BBB) but the remaining term to maturity does not match the target of 5 years. Therefore, we can adjust the debt premium estimates to reflect what we would expect a 5-year term to maturity bond to exhibit.

H15.3 The estimated debt premiums for other issuers in bond categories (e) and (f) are not inconsistent with a debt premium of approximately 1.65%, when consideration is given to the different credit ratings and terms to maturity.

H15.4 The NSS estimate of the debt premium of 1.61% also supports our debt premium determination of 1.65%.

Table H6 DPRY 2019 bond data

Details of benchmark bond

	Sector	100% Govt owned	Bond credit rating	Remaining term to maturity (years)	Debt premium (%)
Benchmark bond	Fibre	No	BBB	5.0	1.65

Debt premiums ordered by bond categories specified in the IMs

Bond category	Issuer	Sector	100% Govt owned	Bond credit rating	Remaining term to maturity (years)	Debt premium (%)	Notes reference
a	CHORUS LTD	Fibre	No	BBB	3.2	1.57	*1*
c	CONTACT ENERGY LTD	Other	No	BBB	4.7	1.44	*2*
c	VECTOR LTD	EDB/GPB	No	BBB	6.0	1.93	*3*
e	AUCKLAND INTL AIRPORT	Airport	No	A-	5.0	1.12	*4*
e	FONTERRA COOPERATIVE G	Other	No	A-	5.0	1.28	*5*
e	GENESIS ENERGY LTD	Other	No	BBB+	5.0	1.71	*6*
e	MERCURY NZ LTD	Other	No	BBB+	5.0	1.65	*7*
e	MERIDIAN ENERGY LIMITE	Other	No	BBB+	5.0	1.50	*8*
e	SPARK FINANCE LTD	Telco	No	A-	5.0	1.24	*9*
e	WELLINGTON INTL AIRPOR	Airport	No	BBB+	5.0	1.58	*10*
f	CHRISTCHURCH INTL AIRP	Airport	Yes	BBB+	5.0	1.54	*11*
f	TRANSPOWER NEW ZEALAND	Other	Yes	AA-	5.0	1.06	*12*
Nelson-Sigel-Svensson (NSS) estimate					5.0	1.61	

Notes on bonds analysed

1 CNUNZ 4.12 05/06/21
2 CENNZ 4.63 11/15/22
3 VCTNZ 4.996 03/14/24
4 AIANZ 3.64 04/17/23; AIANZ 4.28 11/09/22; AIANZ 5.52 05/28/21; AIANZ 3.97 11/02/23
5 FCGNZ 4.42 03/07/23; FCGNZ 5.9 02/25/22; FCGNZ 5.08 06/19/25
6 GENEPO 5.81 03/08/23; GENEPO 4.14 03/18/22; GENEPO 5 04/03/25
7 MCYNZ 5.793 03/06/23
8 MERINZ 4.53 03/14/23
9 SPKNZ 4.51 03/10/23; SPKNZ 4 1/2 03/25/22; SPKNZ 3.94 09/07/26
10 WIANZ 5.27 06/11/20; WIANZ 5 06/16/25
11 CHRINT 6 1/4 10/04/21; CHRINT 5.53 04/05/27
12 TPNZ 5.448 03/15/23; TPNZ 4.069 09/16/22; TPNZ 4.3 06/30/22; TPNZ 3.823 03/06/25

DPRY 2020

H16 We estimated a debt premium of 1.70% for the 2020 DPRY based on the data in Table H7 below.

H16.1 We have had greatest regard to the category (a) Chorus bond, which supports a debt premium of approximately 1.70%. The Chorus bond has the target credit rating and sector but the remaining term to maturity is lower than the target of 5 years. Therefore, we would expect the target bond to have a higher debt premium than 1.62%, supporting our determination of 1.70%.

H16.2 The category (c) Contact Energy and Vector bonds' debt premium estimates match the target credit rating (BBB) and the Vector bond matches the remaining term to maturity of 5 years, whereas the Contact Energy bond is slightly above the 5-year target term to maturity. These bonds support our debt premium determination of 1.70%.

H16.3 The estimated debt premiums for other issuers in bond categories (e) and (f) are not inconsistent with a debt premium of approximately 1.70%, when consideration is given to the different credit ratings and terms to maturity.

H16.4 The NSS estimate of the debt premium of 1.68% also supports our debt premium determination of 1.70%.

Table H7 DPRY 2020 bond data

Details of benchmark bond

	Sector	100% Govt owned	Bond credit rating	Remaining term to maturity (years)	Debt premium (%)
Benchmark bond	Fibre	No	BBB	5.0	1.70

Debt premiums ordered by bond categories specified in the IMs

Bond category	Issuer	Sector	100% Govt owned	Bond credit rating	Remaining term to maturity (years)	Debt premium (%)	Notes reference
a	CHORUS LTD	Fibre	No	BBB	2.2	1.62	*1*
c	CONTACT ENERGY LTD	Other	No	BBB	5.2	1.60	*2*
c	VECTOR LTD	EDB/GPB	No	BBB	5.0	1.90	*3*
e	AUCKLAND INTL AIRPORT	Airport	No	A-	5.0	1.16	*4*
e	FONTERRA COOPERATIVE G	Other	No	A-	5.0	1.51	*5*
e	GENESIS ENERGY LTD	Other	No	BBB+	5.0	1.70	*6*
e	MERCURY NZ LTD	Other	No	BBB+	4.0	1.57	*7*
e	MERIDIAN ENERGY LIMITE	Other	No	BBB+	5.0	1.48	*8*
e	SPARK FINANCE LTD	Telco	No	A-	5.0	1.27	*9*
e	WELLINGTON INTL AIRPOR	Airport	No	BBB+	5.0	1.56	*10*
f	CHRISTCHURCH INTL AIRP	Airport	Yes	A-	5.0	1.34	*11*
f	TRANSPOWER NEW ZEALAND	Other	Yes	AA-	5.0	1.04	*12*
Nelson-Sigel-Svensson (NSS) estimate					5.0	1.68	

Notes on bonds analysed

1 CNUNZ 4.12 05/06/21
2 CENNZ 3.55 08/15/24
3 VCTNZ 4.996 03/14/24
4 AIANZ 3.97 11/02/23; AIANZ 3.64 04/17/23; AIANZ 3.51 10/10/24
5 FCGNZ 4.42 03/07/23; FCGNZ 5.08 06/19/25
6 GENEPO 5.81 03/08/23; GENEPO 5 04/03/25
7 MCYNZ 5.793 03/06/23
8 MERINZ 4.88 03/20/24; MERINZ 4.53 03/14/23; MERINZ 4.21 06/27/25
9 SPKNZ 3.37 03/07/24; SPKNZ 4.51 03/10/23; SPKNZ 3.94 09/07/26
10 WIANZ 5.27 06/11/20; WIANZ 5 06/16/25
11 CHRINT 4.13 05/24/24; CHRINT 6 1/4 10/04/21; CHRINT 5.53 04/05/27
12 TPNZ 5.448 03/15/23; TPNZ 3.823 03/06/25

DPRY 2021

H17 We estimated a debt premium of 1.70% for the 2021 DPRY based on the data in Table H8 below.

A2.1 We have had greatest regard to the category (a) Chorus bond, which supports a debt premium of approximately 1.70%. The Chorus bond has the target credit rating and sector but the remaining term to maturity is significantly lower than the target of 5 years (and just above our minimum cut-off of one-year term to maturity). Therefore, we would expect the target bond to have a much higher debt premium than 1.46%, supporting our determination of 1.70%.

A2.2 The category (c) Contact Energy and Vector bonds' debt premium estimates match the target credit rating (BBB) but the remaining term to maturity does not match the target of 5 years. Therefore, we can adjust the debt premium estimates to reflect what we would expect a 5-year term to maturity bond to exhibit.

A2.3 The estimated debt premiums for other issuers in bond categories (e) and (f) are not inconsistent with a debt premium of approximately 1.70%, when consideration is given to the different credit ratings and terms to maturity.

A2.4 The NSS estimate of the debt premium of 1.72% also supports our debt premium determination of 1.70%.

Table H8 DPRY 2021 bond data

Details of benchmark bond

	Sector	100% Govt owned	Bond credit rating	Remaining term to maturity (years)	Debt premium (%)
Benchmark bond	Fibre	No	BBB	5.0	1.70

Debt premiums ordered by bond categories specified in the IMs

Bond category	Issuer	Sector	100% Govt owned	Bond credit rating	Remaining term to maturity (years)	Debt premium (%)	Notes reference
a	CHORUS LTD	Fibre	No	BBB	1.2	1.46	*1*
c	CONTACT ENERGY LTD	Other	No	BBB	4.5	1.42	*2*
c	VECTOR LTD	EDB/GPB	No	BBB	5.2	1.69	*3*
c	WELLINGTON INTL AIRPOR	Airport	No	BBB	5.3	2.07	*4*
e	AUCKLAND INTL AIRPORT	Airport	No	A-	4.6	1.25	*5*
e	FONTERRA COOPERATIVE G	Other	No	A-	5.0	1.53	*6*
e	GENESIS ENERGY LTD	Other	No	BBB+	5.1	1.54	*7*
e	MERCURY NZ LTD	Other	No	BBB+	3.0	1.34	*8*
e	MERIDIAN ENERGY LIMITE	Other	No	BBB+	5.3	1.37	*9*
e	SPARK FINANCE LTD	Telco	No	A-	5.0	1.09	*10*
f	CHRISTCHURCH INTL AIRP	Airport	Yes	BBB+	5.0	1.75	*11*
f	TRANSPOWER NEW ZEALAND	Other	Yes	AA-	5.0	0.83	*12*
Nelson-Sigel-Svensson (NSS) estimate					5.0	1.72	

Notes on bonds analysed

1 CNUNZ 4.12 05/06/21
2 CENNZ 3.55 08/15/24
3 VCTNZ 3.45 05/27/25
4 WIANZ 5 06/16/25
5 AIANZ 3.51 10/10/24
6 FCGNZ 5.08 06/19/25; FCGNZ 4.42 03/07/23; FCGNZ 4.15 11/14/25
7 GENEPO 5 04/03/25
8 MCYNZ 5.793 03/06/23
9 MERINZ 4.21 06/27/25
10 SPKNZ 3.37 03/07/24; SPKNZ 3.94 09/07/26
11 CHRINT 4.13 05/24/24; CHRINT 5.53 04/05/27
12 TPNZ 3.823 03/06/25; TPNZ 2.73 03/14/24; TPNZ 1.735 09/04/25

Changes in the risk-free rate and debt premium over time

H18 The risk-free rate and the debt premium on bonds change over time. Changes in the risk-free rate and debt premium estimates are illustrated below.

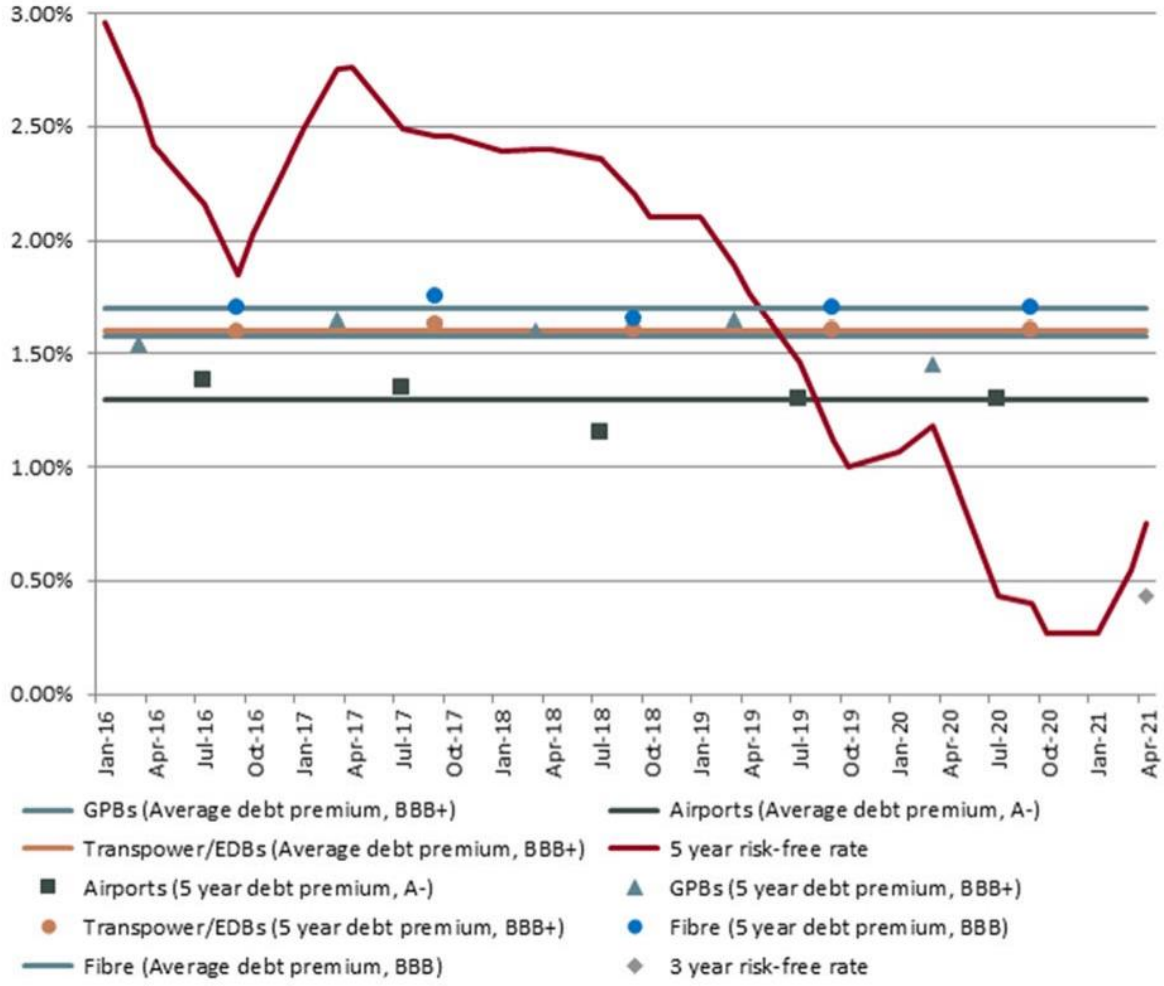
H19 Figure H1 below shows, as at 1 April 2021, changes over time in the:

A2.5 five-year risk-free rate from our historical determinations;

A2.6 a new series for the three-year risk-free rate; and

A2.7 debt premiums and 5-year average debt premiums on bonds rated BBB, BBB+ and A- with a term of five years from our historical debt premium determinations.

Figure H1 Changes in the five-year risk-free rate and debt premiums over time



Attachment I Application of scope of FFLAS

A3 This chapter reconciles our specification of categories of FFLAS to the services Chorus based it expenditure application on.

I1 We asked Chorus on 7 May 2021 in an informal information request how their services reconcile to the list of services that we included in 2.108 of our IM reasons paper. The categories we specified consisted Voice services, Bitstream PON services, Unbundled PON services, Point-to-point services, Transport services, Co-location and interconnection services, Connection services.

I2 Chorus' response to our information request is summarised in Table K1.

Table I1 Chorus categorisation of FFLAS

Service name[305]	IM Service category
BB over fibre monthly access	Bitstream PON
BOF2 rental	Bitstream PON
Business & Education Rental	Bitstream PON
Evolve Business & Education Rental	Bitstream PON
Evolve Residential Rental	Bitstream PON
Fibre Credit Amortisation	Bitstream PON
Fibre Credit Amortisation - Business	Bitstream PON
Government Contribution	Bitstream PON
Hyper Fibre Business Monthly Rental	Bitstream PON
Hyper Fibre Residential Rental	Bitstream PON
NGA Assure	Bitstream PON
Small Business Fibre Rental	Bitstream PON
Wifi ONT Monthly Rental	Bitstream PON
Commercial Co-location	Co-location and interconnection
Commercial Co-location Non-Rental	Co-location and interconnection
Commercial Property Lease Co-Location	Co-location and interconnection
Handover Fibre	Co-location and interconnection
Handover link Connection	Co-location and interconnection
Handover Links	Co-location and interconnection
Handover Links – Commercial	Co-location and interconnection
Legacy Handover Links	Co-location and interconnection
Tie Cable Trade	Co-location and interconnection
Bitstream 4 Installation	Connection services
BOF2 Installations	Connection services

305 The service names are names that Chorus use for internal accounting purposes and may not represent the commercial names of services.

Service name[305]	IM Service category
Broadband ATM Installation	Connection services
Business & Education Installation	Connection services
Complex Fibre Delivery	Connection services
Evolve Business and Education Installation	Connection services
Evolve Residential Installation	Connection services
Fibre Installation Fees	Connection services
High Cost Connection	Connection services
HSNS Installations	Connection services
Hyper Fibre Business Installation	Connection services
Hyper Fibre Residential Installation	Connection services
Managed provisioning	Connection services
Mobile Access Installation	Connection services
NGA Provisioning Ancillary Charges	Connection services
Small Business Fibre Installation	Connection services
Wifi ONT Installation	Connection services
Bandwidth Fibre	Point to Point
Bitstream 4	Point to Point
Direct Fibre	Point to Point
HSNS Other	Point to Point
HSNS Premium Access	Point to Point
Mobile Access Rental	Point to Point
Mobile Access Tails	Point to Point
CNS Ethernet	Transport
CNS SDH/PDH	Transport
CRT	Transport
CRT Installation	Transport
E1s and E3s	Transport
HSNS Tail Extension	Transport
ICABS Chorus	Transport
STM1s and STM4s	Transport
Wholesale ATM	Transport
PONFAS Business Monthly Charges	Unbundled PON
PONFAS Feeder Monthly Charges	Unbundled PON
PONFAS Residential Monthly Charges	Unbundled PON

Attachment J Application of Reg 6 to aggregated FFLAS

J1 In our IM Reasons Paper and Proposed process and approach paper, we expressed the view that the same end-user focussed approach should apply in principle to all FFLAS. That is, the question of whether PQ regulation (and thus s 201) applies:[306]

> should depend on whether the service is used to support the provision of FFLAS to an end-user within an LFC's UFB geographic area, even if the activity is involved in the service, such as the transmission of signals on the transport network to a central office or POI, takes place (in part) outside that area

J2 In response to our Proposed process and approach paper, Chorus submitted that this approach was not practicable to implement:[307]

> **Location of supply** – we do not support the proposed approach to determine the location of supply for co-location and backhaul by reference to the end-user. This is not a practical solution and at present we cannot do this. We would expect that any transport/backhaul services (which have no end-users and are not access services) within an LFC's UFB coverage area (eg, Chorus ICABS inside an LFC's coverage area) would be subject to ID only. Similarly, a co-location service at a location inside an LFC's coverage area would be subject to ID only.

J3 In light of the concerns expressed by Chorus, we have given further consideration to how reg 6 apply to services where:

A3.1 it is not possible to identify the location of the ultimate end-users; or

A3.2 where a service may support some end-users that are inside and some that are outside an LFC's UFB area.

J4 We recognise the practical difficulties that Chorus has identified in relation to aggregated services, and with the benefit of those further submissions, have refined our approach to how reg 6 apply to those services, as set out below.[308]

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[306] Commerce Commission "Fibre Input Methodologies – main final decisions reasons paper" (13 October 2020), paragraph 2.83; Commerce Commission "Fibre information disclosure and price-quality regulation – proposed process and approach for the first regulatory period" (15 September 2020), paragraph 6.16.

[307] Chorus "Submission on Fibre Regulation – Process and Approach (14 October 2020), paragraph 46.

[308] Commerce Commission "Fibre input methodologies: Main final decisions – reasons paper" (13 October 2020), paragraphs 2.106-2.109.

J5 The starting point adopted by the Regulations is that Chorus' FFLAS will be subject to PQ regulation. An exception or carve-out from that requirement (ie, the reg 6 proviso) has been established where the service in question is provided in a geographical area where an LFC other than Chorus has installed a fibre network as part of the UFB initiative (reg 6). We understand that the basis for this carve-out is that Parliament considered that sufficient competitive constraint is likely to exist from other LFCs' services to make PQ regulation unnecessary or disproportionate in such areas. It follows that unless there is a sufficient basis for finding that the proviso applies, PQ regulation will apply.

J6 We are required to apply the statutory test in reg 6, and to identify the geographical area where the service in question is being provided. Reg 6 requires an inquiry into whether "a service is provided in" a particular "geographical area". While the location of the assets involved in providing the service, and the end user(s) are clearly relevant, we consider that a purposive interpretation of reg 6 also permits consideration of whether the service is provided *for* or *in respect of* end-users in that area. In the case of bitstream services, we consider that the service is provided where the end-user is located. For all services though, our focus must remain on applying the statutory language, interpreted in light of its context and purpose.

J7 With this test in mind, we have given further consideration to each category of aggregated FFLAS.

Co-location and interconnection services:

J8 These services allow a retail service provider (RSP) to install its equipment within a Chorus facility (eg, central office) to enable the RSP to provide layer 2 services. The co-location and interconnection services will usually be offered in conjunction with downstream and upstream services.

J9 The assets are situated, and the co-location/interconnection service is provided, in one location. This location will be either inside or outside another LFC's UFB area. End-users of these services are likely to be in the vicinity of the location of the assets. If the majority of end-users are in the other LFC's UFB area, then competition should constrain co-location/ interconnection charges. We therefore consider that for the purpose of reg 6, it is natural to say that the service will be provided in another LFC's UFB area where the facility is inside the LFC's UFB area, and vice versa.

J10 We recognise however that difficult boundary cases may exist where the location of the service is within the other LFC's UFB area, but where a substantial proportion of the end-users benefitting from the co-location/interconnection service are located outside the other LFC's UFB area.[309] Where a substantial proportion of end-users of a co-location/interconnection service are outside the other LFC's UFB area, then it may be said that the service would not be provided for or in relation to that area, and the proviso would not apply.

J11 We acknowledge also the difficulty with establishing whether "a substantial proportion of end-users" of co-location services might be inside or outside the boundary. As such, for practical application purposes and in line with our principle of proportionate regulation, we propose to base the application of reg 6 for these cases also on the location of the service (without specifically trying to establish the where the 'substantial proportion of end-users' are located on a case-by-case basis). We invite submitters' views on this approach.

Point-to-point services (eg, DFAS)

J12 Point-to-point FFLAS include single, multi-layer or layer 1 backhaul services. For example, the direct fibre access service (DFAS) carries traffic from large single site customers such as schools, hospitals or mobile towers or fixed wireless access sites, to a central office.

J13 We consider that for the purpose of reg 6, the service will be provided where the access point is located. This is consistent with the purpose of reg 6: in each case the competitive dynamic for the provision of the point-to-point service operates in relation to the access point (and the end-users the access point serves).[310] In other words the existence of competition depends on whether there is a competing service from the other LFC available to the access point.

Transport services (including, but not limited to intra-candidate area backhaul (ICABS))

J14 Transport services are throughput fibre services that aggregate and transport voice and data traffic across and between fibre networks.

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[309] Or vice versa, where the facility is outside the other LFC's UFB area, but the majority of end-users are inside it.

[310] Although in the case of cell towers or fixed wireless access the ultimate end-users may be further dispersed, Chorus has confirmed that it does not and cannot identify the location of these end-users which will not be fixed in any event.

J15 Because the traffic carried by transport services is aggregated and can include traffic from individual access services, point-to-point services as well as other transport services, we understand it is not possible to identify with any precision the end-users that may benefit from specific transport service links. Overall, we consider there will be insufficient evidence to conclude whether the proviso applies for transport services (with one exception discussed below) and thus, consistently with the position at paragraph I2 above, we consider that PQ regulation will apply for the majority of these services.

J16 Intra-candidate area backhaul is a layer 1 or layer2 fibre service which transports data between central offices (usually from a central office to a Point of Interconnection (POI)).[311] It is purchased by RSPs in conjunction with layer 1 or layer 2 access services to enable the RSP to provide a layer 2 service to end-users.[312]

J17 We acknowledge that where a transport service link starts and ends at central offices that are both located within the LFC's UFB area, it is likely that Chorus will face competition for the supply of transport services on such links. In accordance with the approach described above at paragraphs I2-I3, we consider that where a transport service is used to support the provision of access services inside an LFC's UFB area, then the service can be considered to be provided in the LFC's UFB area for the purpose of reg 6. As a consequence, PQ regulation and s 201 would not apply.

J18 In other words, where a transport service provides a connection entirely within an LFC's UFB area, then the service can be considered to be provided in that LFC's UFB area for the purpose of reg 6 and the proviso will apply. We consider this a practical application approach in line with our principle of proportionate regulation, while we acknowledge that the nature of transport services makes it difficult to establish whether all (or even the majority of) end-users that benefit from such transport services are within the LFC's UFB area. We invite submitters' views on this approach.

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[311] This category of transport services is not limited to the named ICABS service currently offered by Chorus. It includes any backhaul service between central offices, but excludes regional transport/inter-candidate area backhaul services, which the Commission does not consider to be captured by the definition of FFLAS in the Act. Commerce Commission "Fibre input methodologies: Main final decisions – reasons paper" (13 October 2020), paragraph 2.108.5.

[312] In some cases, where co-location capacity is not available in a particular central office, Chorus provides this service for free between the central office with limited capacity and another nearby central office that has co-location capacity.

J19 For the avoidance of doubt, we note that in all other cases (including cases where the service commences and terminates outside the other LFC's UFB area but happens to use assets located in that area), we consider that the service is not provided in the LFC's UFB area for the purpose of reg 6 and PQ regulation applies.

J20 While any decision to take enforcement action would take into account all the circumstances at the time, we would be particularly concerned if there was reason to believe that Chorus had structured its business, operations or prices so that end-users located outside LFC UFB areas did not have the protection of PQ regulation. We invite submitters' views on our analysis above, including on:

J20.1 whether they consider it gives effect to the purposes of the legislation;

J20.2 whether it is practical to implement; and

J20.3 whether they anticipate any unintended consequences from the approach we have described.