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DPP3 draft decision

Submission to the Commerce Commission

Final

From the Electricity Networks Association

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1. Introduction

1. The Electricity Networks Association (ENA) appreciates the opportunity to make a submission to the Commerce Commission (Commission) on the consultation paper: **Default price-quality paths for electricity distribution businesses from 1 April 2020 - Draft decision (draft decision)**.
2. The ENA represents all of New Zealand's 26 electricity distribution businesses (EDBs) or lines companies, who provide critical infrastructure to NZ residential and business customers. Apart from a small number of major industrial users connected directly to the national grid and embedded networks (which are themselves connected to an EDB network) electricity consumers are connected to a distribution network operated by an ENA member, distributing power to consumers through regional networks of overhead wires and underground cables. Together, EDB networks total 150,000 km of lines. Some of the largest distribution network companies are at least partially publicly listed or privately owned, or owned by local government, but most are owned by consumer or community trusts.

2. Submission Summary

3. This submission is prepared in response to the Commission's draft decision on DPP3 for implementation 1 April 2020.

Our overall views:

4. The universal feedback from ENA members is that they consider the proposed DPP3 revenue allowances will systemically under-compensate them for their expected costs over DPP3. This is because the models essentially concentrate all costs and risks on EDBs to manage the expected significant lift in expectations on EDBs to facilitate a far more dynamic electricity market. While EDBs do not expect there to be a significant shift in the landscape during DPP3, there is expected to be significant preparatory work, including planning to create greater visibility of LV networks, facilitation of new markets for demand response, network pricing reform and support for likely government initiatives to decarbonise the economy.
5. Even aside from the changing electricity market environment, EDBs face ongoing challenges in their operating environments. Some examples include:
 - Networks are aging and EDBs expect to incur greater costs of maintenance and inspections as assets are managed through to the ends of their useful physical lives.
 - Although the HSAW Act¹ has been in existence since 2015, case law is clarifying the true expectations on EDBs to manage risks to meet the 'as low as reasonably practical' standard.
 - The rise of consumer-side generation is creating new risks to network owners of back-feeds causing unexpected energisation of worksites, which is creating new requirements to protect workers.

¹ Health and Safety at Work Act. 20156

- The recent tragic deaths of Higgins' workers have brought about recent changes to traffic management requirements. A fault-person used to be able to pull-up to a road-side switch and operate it without any traffic management, but now must put in place traffic management to reduce risks – extending what used to be a job taking a few minutes significantly.
 - Cyber-security threats are increasing and EDBs must respond accordingly.
6. The key point our members make is that none of these factors are included in the scale adjustment terms in the proposed opex allowances, and although individually many of these factors are creating small increments to EDBs' costs that are insufficient to justify a 'step' adjustment, cumulatively they are causing EDBs expenditure levels to increase.
 7. In this submission a key recommendation is that the Commission must address these issues by including a trend factor allowance to accommodate these pressures. The ENA commissioned NERA to undertake an assessment of opex partial productivity trends affecting EDBs. NERA find a stable, long-term trend decline in what is labelled opex partial productivity, but in reality is a reflection of the combination of productivity improvements and other factors driving EDBs' costs higher: the latter is exceeding the former by a significant margin with a trend increase of between 1.7% and 3% since 2002. ENA members strongly reject the proposed judgement call that the Commission only provide for an opex partial productivity factor of 0%, which is the only allowance in the Commission's opex model for non-scale related drivers of opex.
 8. The ENA's overall conclusion is that this reset represents a stiff test of whether DPP regulation is sustainable. If there is not adequate recognition through an appropriate trend allowance for non-scale related factors driving opex, then an alternative model will need to be considered where all EDBs become subject to IPP regulation so that better recognition can be given to forward-looking drivers of costs. The ENA does not consider that this would be a better regime for consumers, because there would be high costs of administering IPPs for all EDBs, but it would be the only realistic way that EDBs can have a reasonable prospect of achieving the WACC.
 9. The other major point of feedback from ENA members is concern that the quality standards and reliability incentive regime will cause unintended consequences and is unclear in how it reflects the 'no material deterioration' principle that we had understood underpins the regime. While we recognise that the Commission has made significant attempts to address many of the concerns that the ENA had with the current quality standards and reliability incentives, we are unsure that key aspects of the proposals will have desirable consequences:
 - The three-hour rolling period for assessing major events is novel and a significant departure from the IEEE standard, which has been underpinned by significant statistical, engineering and operational input. We are concerned that the three-hour approach is too heavily based on statistics and may lead to anomalous outcomes and undesired incentives;
 - The move to annual assessments of unplanned SAIDI performance creates a greater risk of false positives. Quality does not deteriorate within a single year, and the approach may lead to EDBs over-reacting to short-term trends in order to avoid breaches.
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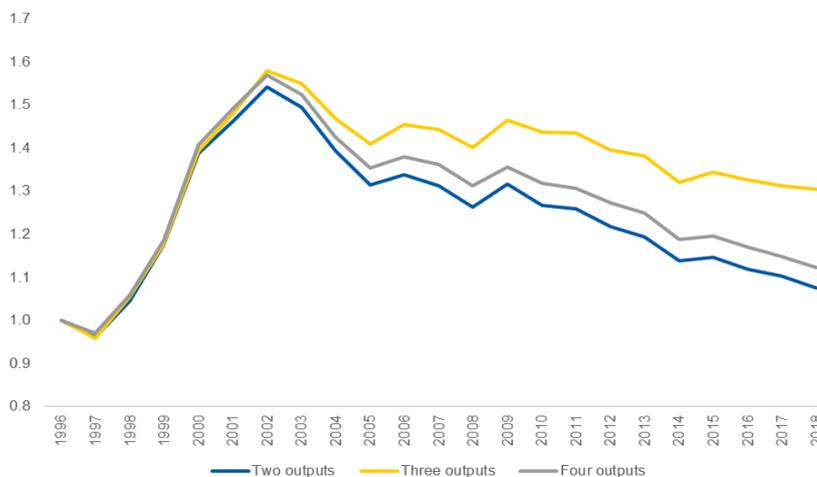
- ENA members understand from experiences of breach investigations to date that these are intensive exercises which carry a significant risk of subjective outcomes depending on what the Commission’s external engineers determine is required to meet ‘good industry practice’. There is substantial risk that EDBs will be pushed towards excessively conservative risk management approaches, which, while having a positive reliability impact for consumers, will likely carry a high long-term cost.

10. We would welcome further opportunity to discuss with the Commission the quality and reliability proposals, to ensure the regime develops in a way that promotes the long-term interests of consumers. In the remainder of this summary we set out our views on particular aspects of the Commission’s proposals. The main body of the report includes our analysis and evidence in support of these summary views.

Opex forecasting:

- 11. ENA members consider that the proposed opex forecasts are likely to under-compensate EDBs for their reasonable opex in DPP3. We set out our reasoning and evidence in this submission but, as proposed in the draft decision, EDBs essentially must fund increasing demands on their businesses out of productivity or efficiency gains.
- 12. There are no allowances for changing business circumstances. As a consequence, the draft decision leaves EDBs likely facing greater downside risks than upside. A good example of this asymmetry is with input price inflation risks due to allowances in the draft that are simply too low.
- 13. We suggest that a necessary change to address these issues is that the productivity measure is more reasonable than is proposed in the draft – it needs to be between -1.7% and -3.0%. Because of the mechanistic way that opex is trended forwards in the DPP, this ‘productivity’ assumption is more accurately characterised as a residual factor that captures opex productivity for measured outputs and changes in opex in relation to unmeasured outputs. The long-term trend is negative with the outlook for DPP3 as more of the same.

NERA - Industry wide Opex partial productivity factor indices



14. It should therefore be unsurprising that the simple mechanistic approach to opex forecasting used by the Commission throws up a long-term negative trend – it is missing the additional expenditure that EDBs have been required to undertake over an extended period. NERA reinforces that point as follows:

‘That is to say, setting a negative residual factor would be recognition that the Commission’s model is necessarily an incomplete abstraction of reality, rather than a belief that the EDBs are becoming less efficient over time’

15. Overall, we consider that the Commission is underestimating the rate of increasing costs, possibly driven by the focus of the opex IRIS where EDBs bear a portion of the present value of any increased opex requirements. We are firmly of the view that opex expenditure that is not driven by scale factors will increase during DPP3 and beyond. EDB experience during DPP2 is consistent with this conclusion.
16. The other component of opex forecasting that troubles ENA members is the likelihood that the Commission’s forecasts of, in particular, labour cost inflation, will leave EDBs with another source of under-compensation of opex. We suggest that prior to the updated draft decision, the Commission has NZIER revisit the labour cost inflation forecast and assess the specific context of EDBs.
17. ENA submits that it may be appropriate to make specific adjustments to the All Industries LCI to tailor it to the circumstances affecting the EDB labour market. The Commission is essentially proposing a 0.4% growth in real wages for EDBs over DPP3, which we think is implausible in a labour market operating at full employment, with high participation, rising demand for electrical workers and is heavily unionised.
18. We feel we should also mention in this executive summary two specific opex costs that will have a material impact on EDB performance – both will not be captured by the scale factors in the opex model. EDBs are under pressure to reform pricing to ensure decisions on local generation investments (and EVs) are made in an efficient manner, and so that Government decarbonisation objectives can be met. Experience at The Lines Company has demonstrated that the reform process will be costly and given that some EDBs are starting the initial stages of pricing reform on 1 April 2020, costs will definitely be incurred in DPP3.
19. The other cost change will result from the Government review of the tree regulations that is starting this year. Change is needed with these regulations and indications are that the EDBs will be expected to undertake more tree cutting at their expense. Tree trimming is already a costly exercise and is set to become more expensive.
20. We anticipate that neither of these changes to opex will break the 1% MAR threshold and allow a re-opener but these, combined with other known and ‘yet to be quantified’ new opex would together exceed that threshold.

Capex forecasting:

21. We note that the Commission has introduced material changes to the way the Commission forecasts and approves DPP3 capex. We support the use of AMPs as the start point, noting that major capex is subject to specific scrutiny while other capex is determined on a historical sliding scale basis. There is also a ‘gating’ system that rates each EDB’s performance on forecasting and delivering capex historically. There is a concern that too much capex has been capped out for some EDBs, with detrimental long-term impacts on consumers.

22. We note that re-openers will be allowed during DPP3 for specific capex requirements (eg: for large customer connections). ENA members consider that all customer connection requirements, large or small, should be the subject of some sort of exception rule. Once an EDB has expended its capex allowance, any additional customer capex becomes NPV negative, which then discourages EDBs from efficiently connecting new customers.
23. It seems clear to ENA members that the proposed level of the cap on capex allowances is going to be problematic for EDBs, in particular smaller ones. We consider that the draft proposal of a (120%) cap on capex should not be a hard limit on capex allowances, but that EDBs who would exceed the cap be provided with an opportunity to substantiate their forecasts further, if necessary. Otherwise we consider that this cap, combined with a higher retention factor in the IRIS scheme could force EDBs to either unreasonably under-perform against their already low WACC, or inefficiently defer expenditure.

Revenue path and incentives:

24. Overall, we consider that the draft decision on the revenue path and incentives reflects the Commissions intent from the 2016 IM changes and the implementation path signaled in the 2018 DPP3 Issues paper. We do however have two material concerns.
25. The ENA suggests that a forecast of other regulated income is included in the MAR calculation, to reduce the impact of revenue cap wash-ups during DPP3.
26. We note the Commission's desire to equalise incentive rates between opex and capex to avoid capex bias and to encourage non-wire (opex) solutions. ENA members are not yet persuaded that the simple equalising equation of the sharing factors (of a permanent reduction in opex to set the capex retention factor) addresses the concern that EDBs do not face a neutral trade-off between opex and capex. Perhaps this can only truly be addressed with a totex approach, but for the time-being ENA submits that EDBs are likely to continue to assess the long-term benefits of capex over opex, where appropriate. In part this is because capex allowances are forward-looking whereas opex is anchored in historical expenditure levels.

Quality standards:

27. The ENA welcomes improvements to the DPP quality standards. The ENA's QoS Working Group put forward a number of suggestions for changes to the way in which quality is regulated under the DPP and also as part of Information Disclosure regulation. We are pleased that these suggestions have been considered, and in some cases adopted, by the Commission in forming the draft decision.
28. The ENA supports the following features of the proposed quality standards:
 - Retaining network reliability within the DPP quality standards
 - Setting EDB specific standards
 - Separating of planned and unplanned reliability standards
 - Accommodating rolling events for normalisation
 - Reducing the impact of the frequency of major events on annual reliability assessments using a pro-rated boundary value method

- Using discounted VOLL rates for the incentive scheme, with additional de-weighting for planned outages
 - Additional reporting for breaches and major events, although these requirements need to be more proportionate than proposed
29. As previously submitted, the ENA supports the 'no material deterioration' principle for DPP quality standards. Avoiding breaches at all costs is not consistent with this standard. Members are concerned that some features of the new proposals will result in an increased number of false positives. Given the legal framework, this is of particular concern and it could lead to sub-optimal investment decisions by EDBs to avoid breaching, even where there is no material deterioration in underlying performance of the network or operational response.
30. Robust technical design of the quality standards is therefore critical, as is a good understanding of the consequences of breaches, and criteria and processes for assessing non-compliance. Ultimately, the long-term interests of consumers will be best served by a predictable and transparent quality standard regime, which incentivises distributors to make investments in managing service quality which are consistent with customer expectations.
31. While there are many features of the draft decision which address concerns that we have previously identified, there are risks associated with such significant deviations from past practice, and recognised international standards. The ENA has a concern that the draft decisions for reliability standards are heavily influenced by statistical analysis, without being tested in the engineering environments of distributors. This could result in unintended outcomes, including on the incentives for distributors to manage planned and unplanned outages consistent with customer expectations.
32. The draft decision includes a number of judgements and new features which are reflected in the proposed quality standards. These features of the draft decision make the proposals difficult to respond to in principle. These untested features:
- introduce additional compliance risk and uncertainty
 - may not be durable, which is a problem for networks investing in long life infrastructure, and is inconsistent with a 'no material deterioration' standard
 - introduce complexity to applications for quality standard variations
 - introduce complexity for compliance reporting and verification.
33. ENA submits a five-year historical dataset should be used to set the targets for planned SAIDI and SAIFI because this is consistent with current work practices, and more consistent with current and planned expenditure levels which have informed the draft decision for the revenue path. It is important that the expenditure programmes which are included in the revenue path are reflected in the planned quality standards, as well as the manner in which they are likely to be delivered. Otherwise EDBs will be penalised financially for undertaking the planned work required to deliver the approved expenditure, and by adopting up to date delivery methods to meet current Health and Safety requirements.
34. There needs to be better harmonisation of the capex allowances (which are an indicator of planned works) and the quality standards. It makes little sense to grant EDBs with up to 120% higher capex (and potentially more at the category level on replacement and renewal capex) but make no allowance for the
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- impact of this additional work on planned SAIDI and SAIFI incentives. The Commission should consider indexing reliability incentive targets and limits to the movements in capex allowances to ensure consistency.
35. ENA recommends that the Commission does not proceed with its proposals for notified and intended planned outages. In respect of the proposed notified planned outage category, members do not support the time-limit on length of notified outage before higher penalties kick in as it is likely to arbitrarily distort operational decision-making, including creating potential for EDBs to split outages into multiple events, this causing additional customer disruptions. ENA submits it would be inappropriate to include SAIDI from outages that do not proceed, as this is not part of the reference dataset, so EDBs would automatically be penalised by their inclusion. There are multiple reasons that outages do not proceed, including responding to late customer requests, adverse weather, mandatory stand-down periods for workers that have attended major faults overnight, etc.
 36. ENA recommends that the unplanned reliability compliance standard (the 2 out of 3 compliance test) should be retained. This approach is more consistent with the 'no material deterioration' standard and will avoid an escalation in the number of breaches, which are expected to result if the proposed annual compliance test is implemented. We consider this would be a more effective means of identifying breaches, as we observe that a material deterioration in performance will generally see systemic excesses over historical performance, exceeding 1.5 standard deviations above the targets.
 37. ENA's members consider that the proposed extreme event compliance standard should not be implemented because it is likely to drive undue risk aversion on the part of EDBs and potentially undesirable operating practices to prevent such incidents. EDBs that are unable to economically invest in network redundancy (e.g., more rurally based networks with radial feeders) are more likely to trigger breaches. It may be that even networks with higher levels of redundancy, are sometimes required to operate in less secure configurations in order to undertake maintenance activities (temporarily operate in N mode), including at Transpower's request.
 38. In the event of an asset failure during the period of the abnormal configuration, the EDB would potentially suffer the costs and burdens of an engineering investigation, with no compensation via an opex allowance to cover such scrutiny. ENA's members would support additional transparency over major events, which can be achieved by publishing explanatory information, including in information disclosure for such events. Members think this is a more proportionate action, than introduction of a standard when there is no particular evidence of a problem.
 39. The ENA does not support increasing the revenue at risk to 2% of MAR, because this could introduce significant revenue and pricing volatility and generate returns which are materially above or below normal/target returns. The proposed increase at the same time as introducing such significant changes to the quality standards creates material uncertainty and may lead to unintended outcomes or perverse incentives which are exacerbated by the increase.
 40. ENA members are concerned that the lack of forward-looking basis for the regime (including the increasing risks to EDBs of rising frequency of major events), increasing operational challenges caused by rising health and safety obligations (e.g., the recent changes in traffic management requirements) means that EDBs are more likely to be on the wrong-side of the incentive scheme through no fault of their own. Because of this asymmetry it is not appropriate to increase the extent of revenue at risk.
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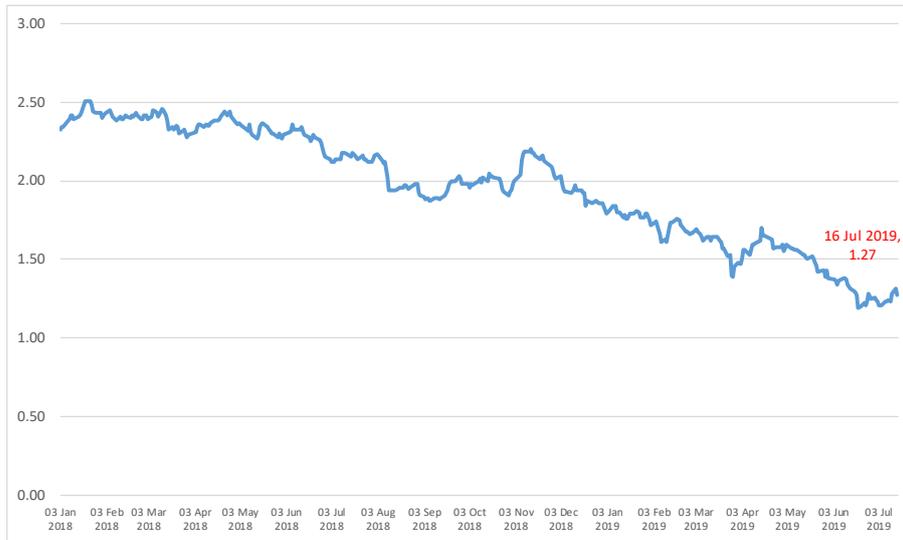
Innovation allowance

41. The proposed new recoverable cost for innovation expenditure represents a significant and timely step forward for the electricity distribution industry and its customers.
42. However, we believe that the current proposal is too limited and therefore won't be as effective as it could be. A more effective application of the proposed innovation allowance will be achieved by pooling the proposed allowance for all distributors and administrating this as a central innovation fund in which all distributors can participate. This would allow effectively sized innovation projects, led by distributors who are best positioned to successfully conclude them. Learning and application details of innovation projects will be shared between all distributors, and innovation benefits will be shared by all New Zealand electricity customers.
43. In addition, even under the proposed pooling arrangement we believe that the current innovation allowance will still not be sufficient to accelerate innovation initiatives to the extent required. Following the successful implementation of the fund and based on its proven effective management and project delivery, we therefore propose that the size of the innovation allowance be incrementally increased over DPP3 from the current proposed 0.1% of revenue per year to 0.5% by the end of the period.

3. ENA overview of the draft decision

44. In the draft decision the Commission states that: 'A key goal of our DPP3 reset is to provide a stable regulatory platform within a changing industry context, while making incremental improvements to the way we regulate price and quality'. The Commission's intent is to maintain stability and consistency with DPP2 and at the same time provide flexibility and incentives for EDBs to adapt to the environment that is changing around them
 45. The ENA does not believe that the Commission has struck the right balance in the draft decision for this goal and we have proposed several important improvements that the Commission can make in its updated draft due in September. ENA's members are particularly concerned that the allowances for opex will systematically under-compensate them for non-scale related changes in the operating environment, as has been experienced during DPP2.
 46. The Commission advises that the proposed changes from DPP2 are driven by data analysis and do not represent a change in policy. The major change in quality standards (the 3-hour rolling measure for outages for instance) was revealed in the Commission analysis of the 53ZD SAIDI/SAIFI data collected in 2018.
 47. The material changes between the regulatory periods are with the Commission approach to capex forecasting and the standards and incentives that are attached to service quality. The Commission has picked up some of the quality improvements that the ENA work group proposed in 2018 but have moved in a slightly different direction to the overall workgroup package.
 48. Our take is that the determination is mostly an incremental change from DPP2, but we think much more development is required to ensure forecasts are accurate. There are some additions and omissions that deserve comment – these are discussed in this submission. The Commission has made material changes to both the quality standards and incentives that we have had PwC analyse on an EDB by EDB basis. Members have used this evidence in their own submissions.
 49. In the draft decision the Commission has assessed the impact of the DPP3 revenue path on consumers - by geographic area using MBIE price survey data. We consider that this approach is somewhat misleading and have discussed this directly with Commission Staff. We agreed that together with the Commission we would work on a more standardised 'comparison model' for illustrating regulatory changes such as these (and pricing reform) on consumers and consumer groups.
 50. As expected, there is a reduction in the WACC (from 7.19% to draft 5.13%). Based on recent five-year Government stock yields, our members expect the WACC to drop further to around 4.7% by the time of the DPP3 final decision. Notably, five-year Government stock yields have fallen negative in real terms – refer the RBNZ HB2 data in the chart below.
 51. The flight to safety, appears to be driving investors to accept negative real yields on Government stocks, but this is unlikely to be a reflection of what investors would require on a genuinely risk-free investment. In the alternative, potentially the market is signaling that the RBNZ's inflation forecasts over the next five years are significantly over-optimistic, which is a further significant risk to EDB equity investors, who will receive around half their returns via revaluations, noting that EDBs pay nominal interest costs.
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GOVERNMENT BOND YIELDS – SECONDARY MARKET



- 52. While ENA Members recognise that they will have to wait for the next IM review to address WACC issues, there is strong disquiet that a nominal post tax WACC of 4.7% and real WACC of 2.6% materially under-compensates EDBs for their cost of cost capital (even accounting for the low interest rate environment).
- 53. In the remainder of this submission we respond to the Commission’s proposals in more detail.

4. Building Blocks Allowable Revenues

54. In this section, we address the components making up the Building Blocks Allowable Revenues (BBAR).

4.1. Opex forecasting

55. We note that the step and trend approach is retained, as is the use of line length and connections for forecasting growth. Similar inflators as for DPP2 are used but in the draft decision the productivity factor is moved from -0.25 to 0. We have significant concerns that the Commission's opex forecasting models do not adequately capture opex drivers unrelated to scale factors which our members consider will almost certainly result in EDBs being undercompensated for their efficient opex over the DPP3 period.

Opex forecast approach

56. To address the missing aspects of the Commission's model, we asked NERA to provide advice on a number of aspects of opex forecasting to assist ENA members (and the Commission) consider the draft decision, namely the use of roll forward forecasting; the proposed productivity factor and the roll forward of price inflator approach from DPP2.²

57. One of the core issues for ENA members is the Commission proposed approach to opex forecasting in this draft decision. EDB AMP opex forecasts are not relied on because the Commission has chosen not to scrutinise them in detail, while opex forecasts have a 1-to-1 direct impact on the bottom line (compared to capex). While we recognise there could be challenges associated with using EDB's AMP opex forecasts, the broader issue to address is how opex escalates over time, including how to make adjustments for industry-wide changes that are not-reflected by changes in business scale.

58. NERA provided us their views on forecasting opex using the step and trend roll forward approach:

*This table (2.1 in the attached NERA report) demonstrates that in the jurisdictions which the Commission has cited, EDBs have a greater ability to **propose** opex, rather than simple mechanistic roll forward of historic costs determining future opex allowances. The Ontario Energy Board's 4th Generation price cap bears the closest resemblance to the DPP. However, even there the base year is a forecast based on the distributor's business plan.*

Opex trend model

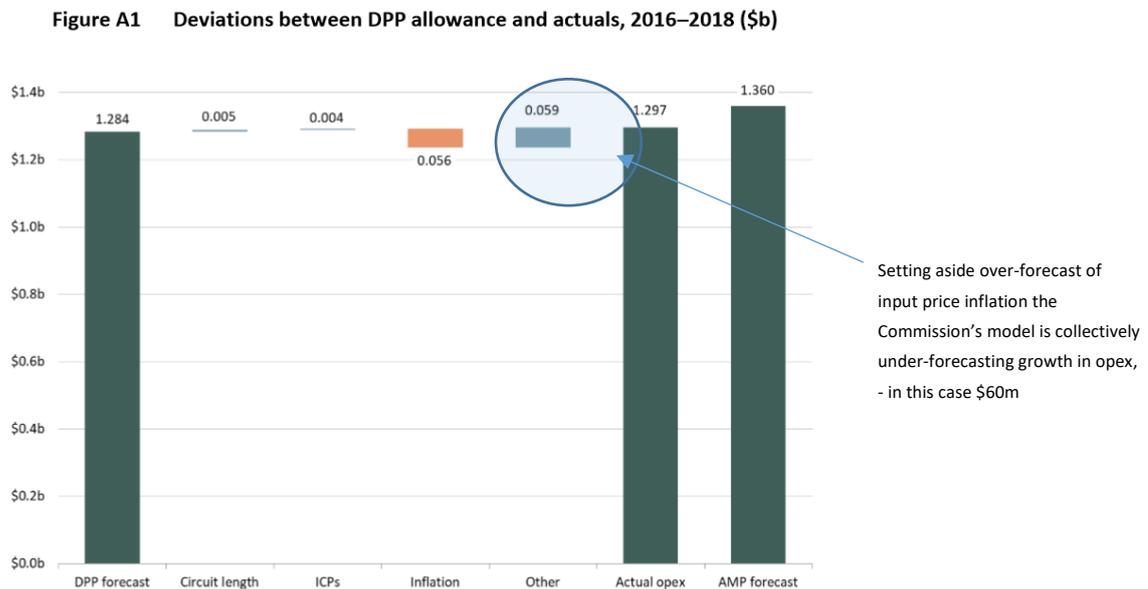
59. The trend model is largely carried over from the DPP2 econometric model and is used to identify how opex grows over time, driven by forecasts of new connections and line length. The model is split into two components – network (for every 1% growth in forecast line length a 0.47% increase in network opex and for every 1% growth in forecast connections a 0.45% increase in network opex) and non-network (for every 1% growth in line length a 0.22% increase in non-network opex and for every 1% growth in forecast connections a 0.65% increase in non-network opex).

60. The ENA has identified significant problems with this approach. It is an incredibly simple model of what drives opex, relying entirely on scale effects (forecast connection growth and line length). It has no

² Ref: Opex Partial Factor Productivity for DPP3. NERA report to ENA 18 July 2019.

allowances for anything else that might influence opex over time (eg; aging networks, growing H&S requirements, regulatory compliance etc). As a consequence, for networks with limited forecast growth in connections or line length, this approach provides for little real growth in opex which is unrealistic.

61. The approach results in under compensation as illustrated in Figure A1 below.



62. NERA comments on this matter as follows:

The Commission gives four possible explanations for this difference:

- *productivity growth being lower than forecast, or individual distributors becoming less efficient;*
- *econometric drivers deviating from actuals;*
- *any step changes not accounted for; and/or*
- *random variation in the level of opex.*

None of these explanations explicitly acknowledge that the Commission's model may simply be an incomplete abstraction of reality and therefore be missing outputs provided by EDBs unrelated to changes in line length and ICPs. Step changes are meant to deal with changes in opex that occur 'outside the model', but as we have already noted, the Commission's approach to step changes is geared towards one-off changes in the level of costs (as implied by the name 'step change').

A simple model is not a problem if its limitations are recognized. Problems arise when simple models are used in deterministic ways that don't recognize their limitations. In the present context, there is a risk of false precision. For example, while the Commission notes that its opex models explains 90-94% of the variation in opex³, it doesn't acknowledge that the unexplained segment may not simply be noise but could be a systematic bias in the model. The persistent negative measured productivity shown in Section 3 may be evidence of a systematic bias in the scale factors.

63. We also have concerns about some of the technical analysis of opex trends that accompanies the draft decision. Members consider that the draft decision is somewhat misleading when it states the

³ NZCC (2019), para. A71 & A72

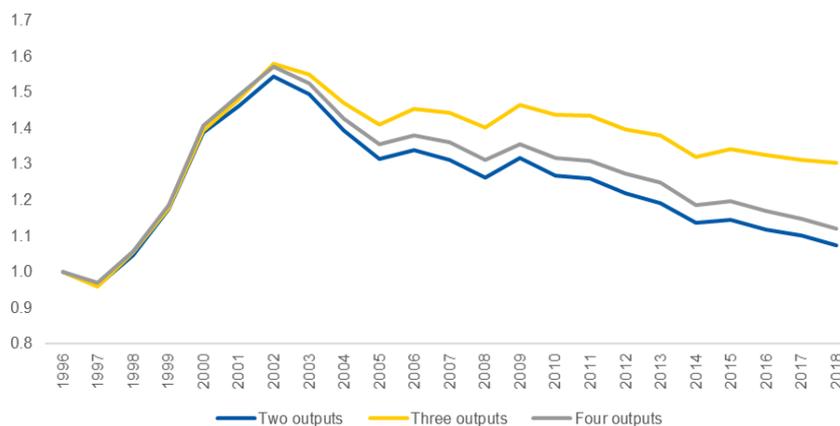
econometric models explain ~90% of the variation in opex. In fact, as we understand it, they explain 90% of the variation in $\text{Log}(\text{opex})$, which is not the same thing, and there is still substantial variation in actual opex that is not explained by the simple explanatory models based on connections and line length.

64. Fire and Emergency – We support these levies becoming a pass-through cost. We suggest that the costs of insurance be treated the same – evidence is that these costs are increasing way beyond any ‘trend’ level from a scale driven opex model.

Productivity factor

65. We do not support a productivity factor of 0% in the draft decision. The ENA engaged NERA to review the Commission’s 2014 analysis and consider what productivity factor should be included in the DPP3 decision. The NERA report is attached, and we briefly describe the results below. The following chart, from the NERA report, describes the long-term negative measured productivity index trend across the distribution networks (for two, three and four output definitions).

INDUSTRY WIDE OPEX PARTIAL FACTOR PRODUCTIVITY INDICES



66. Table X3 below from the NERA report shows that by extending the original EI 2014 analysis through to 2018, a negative measured productivity trend continues. Note that NERA 2004-2014 results differ from EI’s due some data corrections NERA have made to the 2013/14 data which are explained in the appendices of its report.⁴ While using the entire window (back to 1996) results in marginally positive productivity (as it did in 2014), in the same way as EI in 2014, NERA do not place any weight on this extended period calculation.

TABLE X3 -MEASURED PRODUCTIVITY USING THE TWO OUTPUT

Measurement method and window	Residual opex factor
Productivity index: Continuous compounded growth (2004-2018)	-1.85%
Productivity index: Logarithmic regression growth (2004-2018)	-1.74%
NZCC scale factor model time trend (2013 to 2018 – including outliers)	-1.97%
NZCC scale factor model time trend (2013 to 2018 – excluding outliers)	-3.08%

⁴ As already discussed, because continuously compounded growth rates take the first and last year as the final input, a change to the final of data can have a large impact on the calculated growth rate.

67. Based on their analysis, NERA concludes:

.... Because of this, in our view, the productivity assumption should be re-labelled the 'residual opex factor'.

Reframing the opex partial factor productivity assumption in this way should make clear that a negative assumption is not necessarily an assumption of negative productivity. Rather it would be an assumption that the growth of unmeasured outputs exceeds the productivity achieved for opex driven by line length and ICPs. That is to say, setting a negative residual factor would be recognition that the Commission's model is necessarily an incomplete abstraction of reality, rather than a belief that the EDBs are becoming less efficient over time.

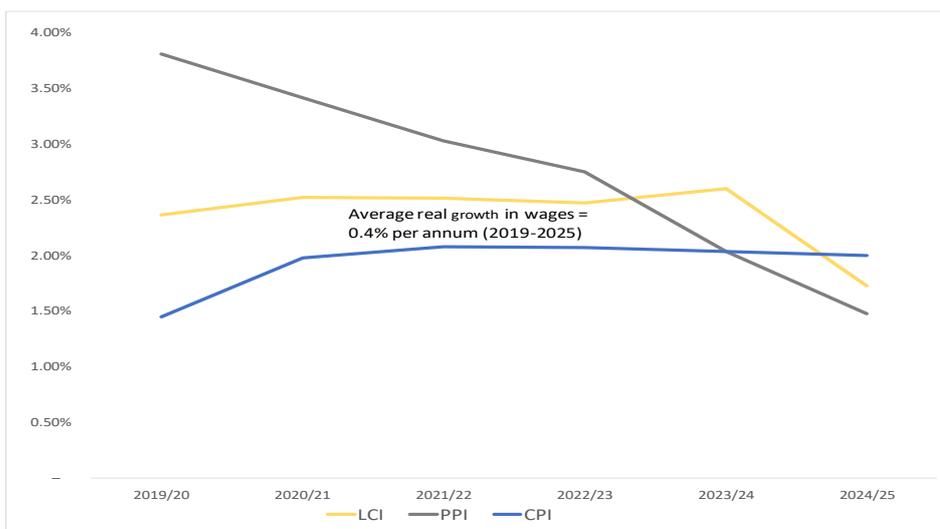
and ...

If these pressures (on opex) are likely to continue over DPP3, compensating EDBs solely on the basis of line length and ICP growth is likely to undercompensate EDBs for the costs they need to efficiently incur. Importantly the DPP2 residual opex figure of -0.25% would significantly undercompensate EDBs if the scale factor model continues to under forecast EDB opex requirements. Therefore, we recommend the Commission sets a residual opex factor significantly less (more negative) than -0.25%. The evidence considered in this report would support a factor between -1.74% and -3.08%.

Labour cost forecasting

68. The chart below is from data in the draft decision. It highlights two key issues, firstly there is only weak real labour cost growth over the forecast period, and there is an unexplained dip at the end of the regulatory period. Neither of these are consistent with our members' expectations.

BRIEF ANALYSIS OF DPP3 OPEX INFLATION FORECASTS



69. In simple terms ENA members find it difficult to understand why, in a highly unionised workforce (in line workers) and in a very tight labour market due to rising expenditure on networks and an aging workforce, that we would see such low real wage inflation (average only 0.4% over the five years).
70. The ENA therefore challenges the inflation and labour cost adjustments in the draft decision. The approach appears to be a roll-over from DPP2 and at a minimum it needs review and the estimation/forecast needs to be updated to respond to the questions raised in this submission. We submit that the Commission should seek additional advice from NZIER on whether an overlay needs to be applied to the all industries LCI to account specifically for the labour market drivers impacting on EDBs.

Step changes in opex

71. One of the challenges for DPP3, is to identify all the factors that will, through the DPP3 period, continue to cause EDBs to increase opex without observable increases in GWh delivered, peak demand and customers served. ENA members consider that the following factors would fit in this category:
- Cyber-security
 - New requirements coming from IPAG
 - H&S Asbestos Regulations
 - Changes in traffic management resulting from Higgins fatalities
 - SaaS
 - New Part 4 reporting requirements
 - Other new legislation
 - Rising traffic congestion
 - Increasing insurance costs
 - Employment Relations Amendment Act
 - Opex associated with LV network performance visibility
 - Design and implementation of new pricing arrangements
 - Meeting the near-term goals of the just released ICCC electrification outcomes.
72. These changes in opex are very hard to quantify (we would be guessing with most of them, but for pricing reform the Commission would do well to discuss the costs of this process with The Line Company), but the individual costs are not the point we are making – it is the sheer size and nature of the list that needs to be reflected in the final decision.
73. The ENA therefore recommends that these issues are addressed by including a trend factor allowance to accommodate these pressures. ENA members strongly reject the proposed judgement call that the Commission only provide for an opex partial productivity factor of 0%, which is the only allowance in the Commission's opex model for non-scale related drivers of opex.

4.2. Capex forecasting

74. There are material changes to the way the forecast capex allowances are determined and approved for DPP3. The proposed approach retains the use of AMPs as the start point but major capex is subject to specific scrutiny while other capex is determined on a historical sliding scale basis. There is also a 'gating' system that rates each EDB's performance on forecasting and delivering capex historically.
75. We understand that the capex gating system impacts ENA members in an asymmetric manner. Those members with higher historical forecast variance are classified as poor forecasters and their capex is adjusted down as a result rather than undergo scrutiny. Those members with lower forecasting variance are scrutinised at the capex category level. This asymmetry runs the risk of the first category of EDB having insufficient capex allowed for to meet their supply obligations and maintain the performance of the network. This could lead to under-spending necessary capex rather than risk incurring IRIS penalties when the capex spend may well be needed for asset reliability reasons and therefore have a direct impact on customers.
76. The proposed cap on capex allowances will be problematic for some EDBs, in particular smaller ones. The draft proposal of a (120%) cap on capex would be better designed as an absolute \$ value to ensure that customer needs can be met. We consider that the proposed cap, combined with a higher retention factor in the IRIS scheme could force EDBs to adopt a very conservative approach to their capex spend.
77. We note that re-openers will be allowed during DPP3 for specific capex requirements (eg: for large customer connections). ENA members consider that all customer connection requirements, large or small, should be available for the re-opener where they were unforeseen and not provided for in the DPP capex allowance. An accumulation of smaller customer connections can materially impact capex allowances for some EDBs - these could simply be excluded from capex incentives rather than generate a re-opener situation.
78. We note that the EDB 'performance standard' is no material deterioration in reliability. This gives rise to a wider concern for ENA members due to the lack of linkage between AMPs (and therefore capex or opex allowances) and the regulated quality standards. EDBs must have sufficient expenditure allowances to execute their work programmes under Good Industry Practice, regardless of starting position
79. The ENA supports basing forecast allowances to some degree on AMP forecasts and providing the opportunity to EDBs to submit alternative methods and additional evidence to supplement the high-level scrutiny tests applied to capex. We consider that the capping approach does not deal with lumpy capital expenditure well, which may affect smaller EDBs more than larger ones. This issue could be improved by the Commission also considering evidence of committed expenditure for large capex projects.
80. We consider that there are improvements that could be made to the gating approach for capex that the Commission is proposing. For instance, the draft decision's high-level assessment process has determined that system growth forecast for most EDBs is reasonable for DPP3 and should be allowed, based on simple cost ratios (\$/MVA in this case).
81. This approach does not recognise new build capex. This is an area where the AMP can provide rich information that is absent from any historical analysis of actual capex to budget. We reinforce the need for the Commission to review AMPs where the proposed initial gate thresholds fail. Consultation with EDBs, in this instance, can provide direction to the important information contained in the EDB's AMP.

82. We understand that some ENA members are submitting their own views on the assessment approach that could be considered to improve the proposals in the draft decision. The ENA suggest that the Commission implement its draft proposal for DPP3 but evaluate the success of, and how to improve upon, this approach for DPP4.

5. Revenue path for DPP3

83. Overall, we consider that the draft decision on the revenue path and incentives reflects the Commission's intent from the 2016 IM changes and the implementation path signaled in the 2018 DPP3 Issues paper.

5.1. Efficiency

84. We note the Commission desire to equalise incentive rates as between opex and capex to avoid capex bias and to encourage non-wire (opex) solutions. ENA members are not yet persuaded that the simple equalising equation of the proportion of NPV benefits (of a permanent reduction in opex to set the capex retention factor) addresses the concern that EDBs do not face a neutral trade-off between opex and capex. Perhaps this can only truly be addressed with a totex approach, but for the time-being ENA submits that EDBs should continue to assess the long-term benefits of capex over opex, where appropriate. In part this is because capex allowances are forward-looking whereas opex is anchored in historical expenditure levels.
85. We understand that some ENA members who have purchased spur assets from Transpower had their DPP2 opex allowances adjusted to offset the ACOT payments that accompanied the asset purchases. These EDBs are now facing opex IRIS penalties in the DPP3 regulatory period because this opex was excluded from allowable opex. We support member views that these IRIS impacts of should be neutralised, including for future spur asset purchases, because they are inconsistent with the intent of both the ACOT allowance and the opex IRIS.
86. To equalise incentive rates to avoid capex bias, and to encourage non-wire (opex) solutions the draft decision proposes to adjust the capex retention rate from 15% in RCP2 to equal the opex rate - 26%, in DPP3. For various reasons (that are not arithmetic) we are unclear whether the changes to the capex and opex incentive rates will result in a neutral (NPV = 0) outcome. This is something that the Commission should investigate as a matter of priority.
87. We are disappointed that our proposal for a blended capex incentive rate has gained no traction (eg: a higher rate for growth capex than for replacement capex). We note the reason given is 'intra-capex' bias and an apparent preference for a totex approach.

5.2. Innovation

88. The proposed new recoverable cost for innovation expenditure represents a significant and timely step forward for the electricity distribution industry and its customers.
89. However, we believe that the current proposal is too limited and therefore won't be as effective as it could be. A more effective application of the proposed innovation allowance will be achieved by pooling the proposed allowance for all distributors and administrating this as a central innovation fund in which all distributors will participate. This would allow effectively sized innovation projects, led by distributors who are best positioned to successfully conclude them. Learning and application details of innovation projects will be shared between all distributors, and innovation benefits will be shared by all New Zealand electricity customers.
90. Benefits we foresee from this approach would include:

Shared outcomes and customer benefits

- a. The wider New Zealand customer base will benefit from all the innovation initiatives conducted with the support of the innovation fund.
- b. Through distributors sharing in the learning and outcomes from a wider range of innovation projects, and through the more appropriate scaling of these projects, the potential realisation of innovation benefits will be accelerated, throughout the country.
- c. Exempt EDBs will also be able to participate in the innovation fund – which is not possible under the current proposal.
- d. Alignment with other regulatory initiatives, for example the collaboration model discussed at the IPAG.

Enhanced project delivery

- e. Projects will be able to be scaled up to more efficient levels. This will allow more effective research and planning, conducting of trials under a wider range of scenarios and practical applications, more detailed field testing, and an improved analysis of the outcomes and focus on how these can potentially be scaled up.
 - f. Enhanced coordination of innovation projects will avoid unnecessary duplication of activities in different parts of the country. This means that a greater variety of innovation could be pursued with the same available funding – which will broaden the potential customer benefit from the allocation.
 - g. Projects will be sufficiently resourced to help ensure that they are effectively managed and delivered. They will also benefit by involving those parties who have most experience in delivering on the specific type of innovation project being delivered.
 - h. Standardised industry solutions will be promoted, which has implementation and realisation benefits, as well as potential for further scale benefits.
 - i. Increasing the scale of projects will enhance the potential for collaboration and co-funding with external parties, such as market participants, academia, suppliers and consultants.
91. Even under the proposed pooling arrangement we believe that the current innovation allowance will still not be sufficient to accelerate innovation initiatives to the extent required. Following the successful implementation of the fund and based on its proven effective management and project delivery, we therefore propose that the size of the innovation allowance be incrementally increased over DPP3 from the current proposed 0.1% of revenue per year to 0.5% by the end of the period.
92. Refer to Appendix 2 for the full ENA proposal on innovation funding.

5.3. Reopener

93. We have commented elsewhere in this submission on matters that we consider should be subject to reopeners. In particular, that the draft allows additional reopeners for unforeseen customer connections that are not provided for in capex forecasts.

94. ENA members are firm in their shared view that flexibility is needed in more than just the capex forecasts of DPP3. We consider that simplistic models that use 10 years of historical data to forecast 5 years (and more) into the future when the customer, technical and operating environments are changing around us is simply not going to work.

5.4. Revenue cap and wash-up

95. The ENA notes and supports the proposal to retain the regulatory period at 5 years. Many of our members have structured their financing arrangements around a 5-year reset timeline and have also established governance and longer-term planning around this regulatory time period. Retention of a 5-year regulatory period is also consistent with the IRIS incentive mechanism.
96. We note and support the idea of applying an NPV neutral 10% limit on the annual increase in forecast revenue from prices as this will reduce the potential for price volatility for customers (depending of course on what retailers do with price changes). We note that risks may come from a wide range of sources (reduction in demand, price restructures, recoverable costs (eg: IRIS), TPM, wash-up draw down amounts).
97. There is a requirement for members to prepare an annual compliance statement to set out the end of year revenue and wash-up amounts. We understand from our members that there is likely to be timing and resource difficulties with this process and that a number of members have proposed alternative approaches to deal with potential issues. We support this and urge the Commission to reassess this aspect of the draft decision.

6. Quality standards

98. The ENA welcomes improvements to the DPP quality standards. The ENA's QoS Working Group put forward a number of suggestions for change to the way in which quality is regulated under the DPP and also as part of Information Disclosure regulation. We are pleased that these suggestions have been considered, and in some cases included, by the Commission in forming the draft decision.
99. The DPP Quality Standards are enforceable under Part 4 of the Commerce Act, and the consequences of breaches are significant for non-exempt EDBs, potentially leading to pecuniary penalties and criminal proceedings. This legal framework may drive businesses to create compliance buffers where potential compliance risk exists or is not well understood. Robust technical design of the quality standards is therefore critical, as is a good understanding of the consequences of breaches, and criteria and processes for assessing non-compliance. Ultimately, the long-term interests of consumers will be best served by a predictable and transparent quality standard regime, which incentivises distributors to make investments in managing service quality which are consistent with customer expectations and the expectations of the Commission.
100. As previously submitted, the ENA supports the 'no material deterioration' principle for DPP quality standards. Avoiding breaches at all costs is not consistent with this standard. Members are concerned that some features of the new proposals will result in an increased number of false positives. Given the legal framework, this is of particular concern and it could lead to sub-optimal investment decisions by EDBs to avoid breaching, even where there is no material deterioration in underlying quality.
101. The ENA supports quality standards which focus on incentives to maintain quality, rather than compliance investigations.
102. While there are many features of the draft decision which address concerns that we have previously identified, there are risks associated with the significant deviations from past practice, and recognised industry standards. The ENA has a concern that the draft decisions for reliability standards are heavily influenced by statistical analysis, without being tested in the engineering environments of distributors. This could result in unintended outcomes, including on the incentives for distributors to manage planned and unplanned outages consistent with customer expectations. It may also increase the number of breaches, which would be a poor design outcome.
103. Members are also concerned about the additional complexity in the design of the proposed quality standards, which will require material changes to existing data management and reporting processes.
104. It is disappointing that the proposals do not specifically address customer service measures. The ENA's QoS workgroup developed potential customer service measures for inclusion in the quality standards which were tested with customer representatives and were endorsed as measures of service valued by them. The ENA would support inclusion of a wider set quality of service measures for the DPP.

6.1. The draft decision approach

105. The draft decision includes a number of new features and judgements which have been applied when setting the parameters for each element of the proposed quality standards. Many of these were not signaled in the Issues Paper and we note that the draft decision does not fully explain the rationale for

some of the components of the proposed quality standards, the counterfactuals considered, or the impacts of alternative approaches. This additional complexity has meant that members have spent considerable time during the consultation period building an understanding of the proposals. This was complicated by the fact that the workings supporting the proposed standards were only available in Stata files, which many members are not experienced with. The spreadsheet version was helpful (albeit simplified) but was provided quite late in the process.

106. The new features and judgements which are proposed are extensive and include:

- a. Planned reliability limits set at 3 times the target
- b. Unplanned reliability limits set at +1.5 standard deviations of the target
- c. Unplanned reliability targets and limits subject to +/- 5% inter period caps
- d. Extreme event limits (for certain unplanned outages) set at 3 times the 3-hour boundary value (for all unplanned outages)
- e. 0.2 uplift on the 2.3 times IEEE major event frequency parameter
- f. Unplanned outages assigned to half hour periods for normalisation
- g. Major events identified on a three-hour rolling basis
- h. Three-hour boundary values for normalisation
- i. Major event substitution set at 1/8th of the boundary value
- j. Boundary value adjustments for certain networks using a prorated circuit km approach
- k. 50% de-weighting for notified planned interruptions
- l. 4 hour notified planned outage limit, with 5 working days advance notice
- m. Inclusion of intended planned outages which have not taken place, with 50% de-weighting
- n. VOLL discounted for IRIS incentive factors and a further 20% de-weighting for the effect of the quality standards

107. These assumptions make the proposals difficult to respond to in principle. Importantly, it is not clear whether these judgements affect all non-exempt EDBs equally, whether they will appropriately identify material deterioration in quality, incentivise appropriate levels of investment in networks and whether there is additional compliance risk which will need to be managed.

108. In addition, we are concerned that these judgements may not be durable. It is possible that a new set of parameters or design features will be derived for RCP4 to match the updated datasets. While this approach may satisfy the data analysts, it is less useful for networks investing in long life infrastructure, with the objective of meeting the long-term needs of electricity customers. It is also not consistent with a 'no material deterioration' standard, as by definition this needs to apply over time.

109. We also note that without a full understanding of the logical basis for the assumptions which have been applied in the draft decision, applying for a DPP quality standard variation or a CPP quality standard will be more difficult. In this respect we note that the IM requirements for a DPP quality standard variation, and a CPP quality standard, are not well aligned to the new proposals, as they were drafted with

reference to the current quality standard design. The ENA requests that the Commission clarifies its expectations in this respect, or alternatively considers amendments to the IMs to reduce this complexity and improve regulatory certainty.

6.2. Quality standards

6.2.1 Quality standard design

110. As previously submitted, the ENA supports the following features of the DPP quality standard design:

- a. Retaining network reliability within the DPP quality standards
- b. Setting EDB specific standards
- c. Separation of planned and unplanned reliability standards.

111. As stated above, members are disappointed that customer service measures have not been included in the draft decision. However, ENA members support capturing information about customer service levels, including for notification of planned outages and customer connection processes, through information disclosure regulation.

6.2.2 Planned interruption standard

112. The proposed standard reflects the following design:

- a. Derived from a ten-year historical dataset
- b. Targets are based on the historical average
- c. Limits are 3 times the targets
- d. Compliance is assessed at the end of the five-year regulatory period
- e. Annual reporting is required, with notified planned interruptions de-weighted, and intended outages included (also de-weighted) where they did not occur
- f. Non-compliance requires additional reporting of planned outage data, strategies for managing outages, and investigations and analysis.

113. The ENA submits that a five-year historical dataset should be used to set the targets because this is consistent with current work practices, and more consistent with current and planned expenditure levels which have informed the draft decision for the revenue path. It is important that the expenditure programmes which are included in the revenue path are reflected in the planned quality standards., as well as the manner in which they are likely to be delivered. Otherwise EDBs will be penalised financially for undertaking the planned work required to deliver the approved expenditure, and by adopting up-to-date delivery methods.

114. In particular, the ten-year period captures a number of years prior to the Health and Safety at Work Act. Since the Acts' introduction, there have been material consequent changes by EDBs in working with live lines and automatic restoration of lines after outages. These changes have had a material impact on the duration of outages, which is not reflected in the historical statistics. The more recent five-year period is therefore the appropriate reference period on which to base the planned target, because it better

reflects good industry practice⁵ and is also more likely to reflect the expected work volumes that a distributor faces. We comment further on the impact of the planned targets on incentives for undertaking planned work in section 6.26.

115. It is not clear why the Limit has been set a 3x the target, and therefore it is not possible to comment on this aspect of the proposals. We do however agree with the intent to enhance distributors' flexibility in managing planned work or to respond to emerging needs on the network, which will be in the longer-term interest of consumers.
116. The ENA also supports the proposal to assess compliance at the end of the regulatory period, which will allow EDBs to optimise their planned work within the regulatory period.
117. We note that there appear to be errors in the calculations of the targets for some EDBs in the models supporting the draft decision, as we have been unable to replicate the planned SAIDI and SAIFI targets for a number of EDBs from the underlying datasets. Some data appears to be incorrectly de-weighted, which may be a carry-over from the RCP2 calculations.

Notified planned interruptions

118. We support consideration of planned outage notifications for quality measurement purposes. This is consistent with the customer service measure focus which was investigated and recommended by the QoS working group.
119. However, we consider that there are a number of issues with the current proposal:
 - a. De-weighting of notified planned outages for the annual planned SAIDI and SAIFI assessments
 - b. Inclusion of de-weighted intended planned outages for the annual planned SAIDI and SAIFI assessments, even if these do not occur.
120. The proposed definition of a notified planned interruption is:
 - c. At least 5 full working days advance notice (to retailers or customers)
 - d. Clear visibility of notifications on website or online means
 - e. Interruptions no longer than 4 hours
 - f. Interruptions to fall entirely within the notification window
 - g. Interruptions will be counted (but de-weighted) even if they do not eventuate.
121. The ENA considers that the proposals are problematic because:
 - a. The notification rules proposed are not realistic and the 5-day notice period is and not consistent with current industry practice and electricity market protocols.
 - b. A four-hour outage window is too short to complete major planned works and compressing these, if at all possible, would lead to inefficiencies. Our analysis of the 2009-2018 datasets indicates that 53% of all planned outages exceeded four hours.

⁵ Ideally planned targets should be forward looking, based on the anticipated volume of work and working methods. However, we accept that an in-depth review of forward-looking targets may be beyond the scope of a DPP process.

- c. EDBs are likely to ignore the opportunity to obtain lower incentive rate - indeed, they may explicitly adopt policies that require the business and their contractors to ignore it. The proposal runs counter to the requirements of the HSAW Act not to place financial incentives over safety considerations.
 - d. The notification rules don't align with current practice which include reserve days for when unanticipated events (like adverse weather) mean that planned outages cannot proceed.
 - e. The notification rules may introduce incentives to manage planned outages in a way which increases disruption for customers, as the four-hour limit may result in additional subsequent outages, which will cause unnecessary disruption and cost. It could also lead to a perverse incentive to artificially split outages into shorter time periods in order to comply with a four-hour limit.
 - f. There will be a significant increase in the reporting requirements for planned outages, to comply with the definitions proposed in the draft decision
 - g. This data is currently not audited and may not be able to be audited in a cost-effective manner. For example, there is no SAIDI data for outages which were intended but did not occur.
 - h. Planned interruptions that do not go ahead are not included in reference datasets, so EDBs will automatically face penalties from their inclusion. There are many safety considerations that cause outages not to go ahead, including adverse weather, mandatory stand-downs of employees that may have attended faults during the night, late customer requests to defer outages, and seasonal influences such as winter flu, mutual aid to other EDBs that have suffered storms. ENA submits that this inclusion is unwarranted and may drive unintended consequences.
122. The proposed design of the planned reliability standard will therefore introduce significant additional complexity, as EDBs will be required to maintain records, to an auditable standard, which support each of the categories of planned outages.
123. We do not support this proposal because we do not believe the benefits outweigh the costs, and we are concerned at the unintended consequences of EDBs attempting to manage to the specified criteria, which may result in incentives to reduce quality of service for customers.
124. Accordingly, we recommend that the notified/intended components of the planned reliability standards are removed, and that information regarding planned notifications is included in annual Information Disclosures for RCP3, with further consideration of them for the RCP4 DPP quality standards.

6.2.3 Unplanned interruption standard

125. The proposed standard reflects the following design:
- a. Derived from a ten-year historical dataset
 - b. Normalised for extreme events (refer further discussion in section 6.2.5 below)
 - c. Targets are derived from the historical average
 - d. Limits are based on 1.5 times the target
 - e. Limits and targets are capped to +/-5% inter-period movement, which affects about half of the non-exempt EDBs
-

- f. Compliance is to be assessed annually
- g. Non-compliance requires additional reporting of unplanned outage data, reviews, investigations and analysis, including the sufficiency of asset replacement and renewal and vegetation management.

Reference period

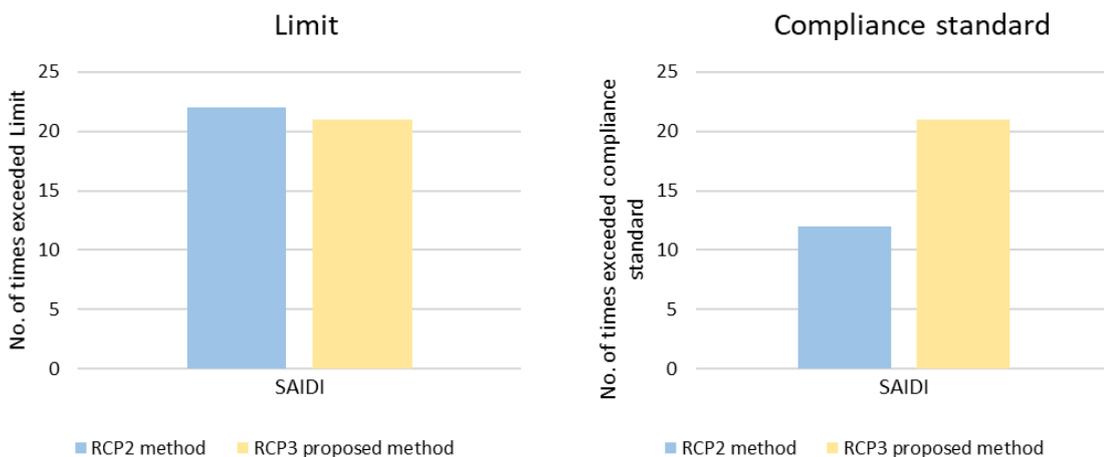
126. The ENA supports the use of the most recent ten-year period for the unplanned reference dataset, and basing the target on the historical average, which is consistent with maintaining a no material deterioration standard.

Single year compliance test

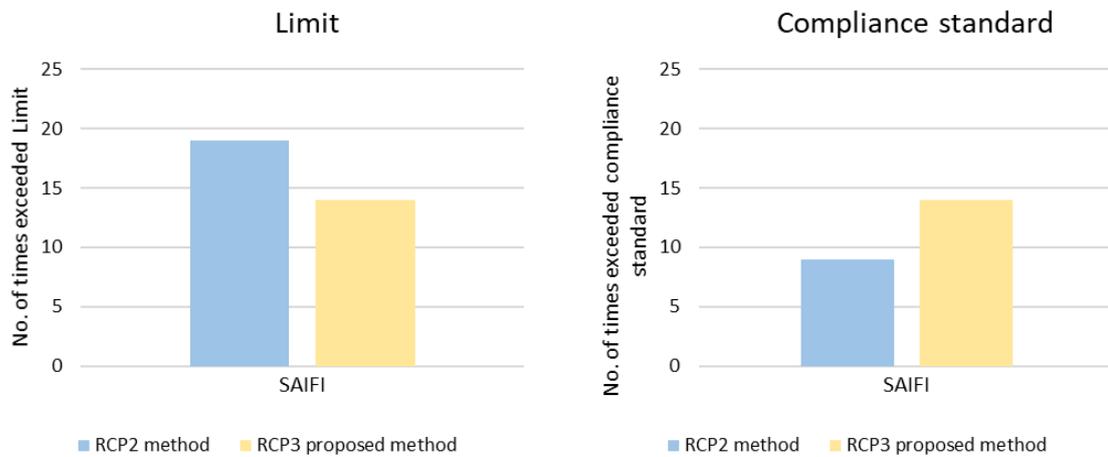
127. The ENA does not support the proposal to change the compliance standard to a single year test because this is not consistent with a no material deterioration standard and is expected to result in a significantly increased number of breach investigations and false positives.

- a. Our analysis suggests that the increase in the buffer between the target and the limit (to 1.5 standard deviations) is not sufficient, by a considerable margin to avoid the increased incidences of breaches due to the single year compliance test, as suggested in L28 in the Decision Paper.
- b. It is not clear why the limit was set at 1.5 standard deviation above the target (pre inter-period capping). The expectation of similar levels of contravention as experienced in RCP2 is not supported by our analysis, which suggests that the incidence of breaches would be significantly higher. The following table illustrates these results which show reductions in the number of times the annual Limits are exceeded, but significant increases in the number of times that the compliance standard is exceeded. We also note that only 4 of 17 EDBs would have avoided breaching had the RCP3 method applied during the 2014-2018 period.

UNPLANNED SAIDI – NUMBER OF TIMES EXCEED LIMIT AND COMPLIANCE STANDARD (2014-2018)



UNPLANNED SAIFI – NUMBER OF TIMES EXCEED LIMIT AND COMPLIANCE STANDARD (2014-2018)



RCP2 Assumes Limit is 1 std deviation above historical average (2005-2014) and assessed for the five-year period 2014-2018.

Compliance standard is 2 out of 3 years.

RCP3 Assumes Limit as stated in Draft decision and assessed for the five-year period 2014-2018. Compliance standard is 1 year.

Where SAIDI and SAIFI are assessed independently - for illustrative purposes.

- a. A single year test implies that material deterioration occurs immediately, not over time. This is not consistent with asset performance in practice, where asset strength weakens over a prolonged period. While failure mode curves increase near end of life, this rarely manifests as a single year step change. A sudden change in reliability in a single year, with no previous indication, is therefore unlikely to reflect material deterioration of network performance. Rather, such an event will more likely arise from statistical variation, for example due to significant weather patterns. The reality of unplanned outages on electricity networks is that the majority of especially more serious outages are driven by external environment factors, the incidence and severity of which varies greatly between years. Accordingly, the single year standard is not consistent with the no material deterioration principle which underpins the quality standards.
- b. The inter-period cap and the separation of planned quality standards also contribute to higher expected incidences of breaches. (While we support the separation of planned and unplanned outages, we do note that previously distributors had some ability to mitigate against bad unplanned network performance by reducing the number of planned outages.)
- c. There is a history of enforcement delays where numerous breaches have occurred. This is why additional provisions to reduce false positives have been introduced into the DPP in the past. Currently quality breach investigations continue for at least 18 months. This is not consistent with promoting regulatory certainty.
- d. It is not clear what benefit the Commission intends to achieve with a single-year measure, particularly as it would need to assess whether there is an underlying deterioration in network performance, which can only be observed over a number of years. Significant single year exceedances can be adequately monitored with additional reporting requirements.

Limit value

128. The ENA supports the proposed limit set at 1.5 standard deviations above the unplanned reliability targets even if our proposal to retain the multiple year test for compliance is accepted. This would:
- a. mitigate against the impact of separating planned and unplanned outages on the likelihood of exceeding the limit; and
 - b. reduce the number of false positives arising from other factors in assessing whether a network's performance is deteriorating over time.
129. The ENA therefore submits that the compliance standard for unplanned interruptions reverts to the RCP2 approach which better reflects the no material deterioration standard, avoids unnecessary breach investigations, and involves:
- a. Limits set at 1.5 standard deviation of the target
 - b. A 2 out of 3-year compliance test incorporating both SAIDI and SAIFI measures
 - c. Additional reporting in any year where the annual assessed value exceeds the Limit
 - d. Supplemented with a financial incentive scheme for SAIDI.
130. This is consistent with incentivising EDBs to make investments consistent with customer demand for quality, rather than diverting resources into investigations, or making suboptimal decisions focused on avoiding investigations.
131. The draft decision includes information to be provided in the event of a breach of the unplanned reliability standard. The information requirements appear to be disproportionate to the compliance standard because they are defined in extremely broad terms, for example they include any:
- a. analysis of trends in asset condition
 - b. analysis of the causes of Class C interruptions
 - c. analysis of asset replacement and renewal
 - d. analysis of vegetation management.
132. At the very least these requirements need to be time bound, the information must be current, ie: relevant to the current state of the network, and useful for understanding outage performance. Such a broad set of information requirements are also not well suited to public disclosure.
133. We would welcome the opportunity to discuss a more proportionate approach to the information requirements with the Commission prior to the final decision.

6.2.4 Normalisation of major events

134. The draft decision proposes that normalisation of extreme events is no longer based on the IEEE method, and instead a method which has been derived from statistical analysis of EDB unplanned outage data is proposed. The key features of this method are:
- a. The normalisation approach applied to the unplanned SAIDI and SAIFI data when setting the standards, is to be applied to the annual assessments of unplanned outages during RCP3

- b. Major events are defined on a rolling 3-hour basis, in half hour increments, independently for SAIDI and SAIFI
 - c. Major events may exceed 3 hours duration, in half hour increments, and may cross over calendar days
 - d. The boundary value is the 150th assessed half hour (of three-hour data)⁶, from the ten-year reference dataset⁷
 - e. The boundary values are adjusted for smaller networks with fewer major events
 - f. Each 30-minute period within a major event is substituted with 1/48th of the boundary value. This is equivalent to 1/8th of the 3-hour boundary value, for a 3-hour major event.
135. We support separate normalisation assessments for SAIDI and SAIFI, and consistency between the methods for setting the unplanned outage standards and the annual assessments.
136. The proposed method deviates from the widely used IEEE 2.5 Beta method to identify major events and is unique to New Zealand. It is not clear whether the 3 hour assessment periods are consistent with an EDB's expected ability to reasonably respond to a major event, or whether three-hourly outages still approximate the log normal distribution of daily SAIDI, which underpins the IEEE approach adopted as widespread industry practice for identifying major events.

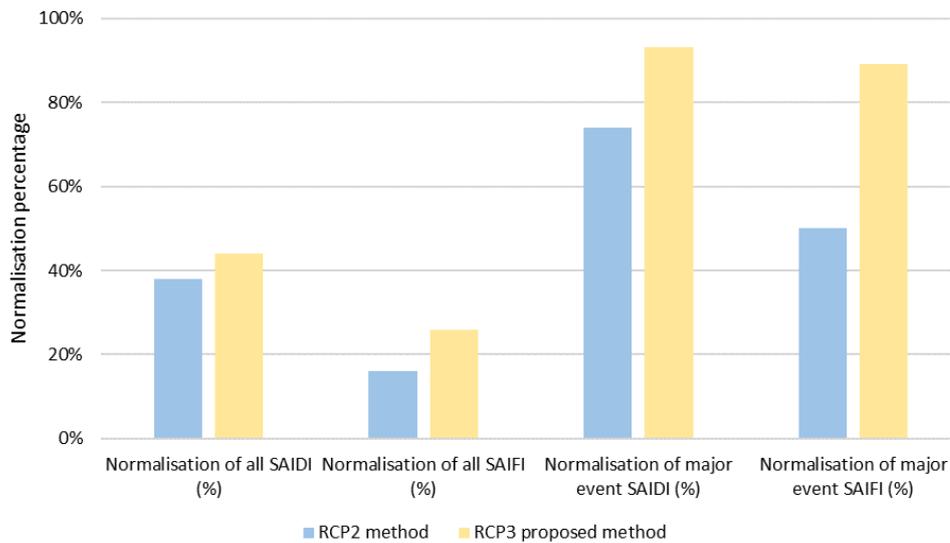
Major event identification

137. Our analysis indicates that the proposed method will:
- a. Increase the incidence of major events relative to the IEEE (and RCP2) method
 - b. Significantly reduce the average duration of major events, because events as short as 3 hours are captured
 - c. Significantly reduce the total number of hours identified as major events relative to the IEEE method.
138. Thus, the proposed method captures more, but shorter events than under the IEEE method, as illustrated below. This deviation may not adequately identify the ability of a network to respond to a major event and restore normal operating capability. The short, half hourly, assessment periods don't fully reflect the restoration effort, because the data is collated with reference to the start, not the finish time of an outage. Therefore, outages which occur close to, but outside the major event period may not be able to be responded to as normal, due to the flow on effects of the major events recorded within three hourly periods, but not fully resolved within those periods.

⁶ Note the Draft decision also refers to this as the 25th highest three-hour period

⁷ This value still roughly approximates the number of events per year exceeding a distributor's reasonably expected capacity, as established under the IEEE method.

IMPACT OF PROPOSED NORMALISATION METHOD (2009-2018)



139. In addition, due to the shorter data periods, the method is likely to generate more false positives than the IEEE method. That is, a major event may be identified as a result of statistical co-incidence, during otherwise benign conditions.
140. The calculations and datasets required to identify the major events are more complex under the proposed methods, and a number of our members had difficulty conceptually understanding the proposed new methods (including aligning the description in the draft decision, with the draft determination and the models). We therefore have some concerns about whether the proposed method is unnecessarily complex, and for some EDBs, some investment in upgraded reliability reporting systems may be required.
141. It is also not clear why the standard IEEE method was rejected, and the draft decision does not present this counterfactual. The QoS workgroup's recommendations were to retain the IEEE method, but refine slightly by allowing for major events to roll across calendar days. This would preserve consistency with the network performance considerations inherent in the IEEE standard. It is not clear to what extent this counterfactual was tested against the alternative included in the draft decision.
142. However, we acknowledge that the proposed new method has attempted to address the concerns about restricting major events to single calendar days, and that the rolling event feature is an improvement in this regard.

Major event substitution

143. Our analysis indicates that the proposed method will increase the value of SAIDI/SAIFI which is normalised relative to the IEEE (RCP2) method, because a pro-rated boundary value is used to substitute during major events. This is illustrated in the chart above.
144. The ENA had previously submitted that substituting a major event with the boundary value significantly increased compliance risk due to the residual SAIDI/SAIFI impact of these events, even after normalising. This approach also did not adequately address the significant between-year variance in reliability

performance, thus complicating any assessment of whether network performance is actually degrading. We acknowledge that using the proposed pro-rated boundary value will reduce the impact of major events on annual reliability performance. This is a significant improvement on the RCP2 method.

145. The IEEE method completely removes major events from reliability assessments, which is another option to be considered. An alternative, which retains some recognition of the outage impact during a major event, is to substitute with the average. This option is rejected in the draft decision because it is considered that this method effectively neutralises major events for annual assessments.
146. The effect of the Commission's approach is that in a benign year customers pay more because the weather is good, and in a year with a higher frequency of major events, EDBs compensate their consumers for bad weather, at a time when they are already having to expend more on repairing network damage. ENA members remain perplexed why the Commission continues to insist on departing from the IEEE standard and creating such a penalty/reward scheme.
147. Following the draft decision reasoning, a further alternative could be to retain the IEEE method, but substitute each event with 1/8th of the boundary value. This would address the concerns with neutralising the outages which occur during a major event while reducing the impact of the frequency of the events on the annual assessment, by using the pro-rated boundary approach proposed in the draft decision. The principle of a rolling measurement of events can be maintained, but to do so over a 24-hour period, rather than three hours.
148. Finally, as previously submitted, EDBs work hard to restore power to consumers as quickly as possible during major events. The inference that EDBs manage their responses to these in a way which maximises the normalisation impacts (by delaying responses to achieve boundary values) is unsubstantiated and disrespectful of the efforts of the controllers and field staff during these difficult events.

6.2.5 Extreme event interruption standard - SAIDI

149. It is proposed that an additional SAIDI outage standard is introduced for extreme events, which is:
 - a. Set at 3 times the boundary value (for all unplanned events)
 - b. Assessed on the basis of the sum of outages caused by human error, defective equipment and unknown causes within a 3-hour period
 - c. Compliance is assessed annually
 - d. Non-compliance requires additional reporting of data, reasons for breaches, reviews, investigations and analysis, including the sufficiency of asset replacement and renewal.
150. This proposal for an additional compliance standard is not supported, because it is not consistent with a no material deterioration standard and is therefore considered excessive. Including this set of causes in a compliance standard may result in over-investment in networks, as the possibility of severe consequences for compliance breaches may incentivise EDBs to invest to avoid asset failure. This is likely to result in outcomes which are inconsistent with customers' price/quality trade-off requirements.
151. We support the principle that all EDBs should identify the high-impact low probability risks on their network that could give rise to outages of the extent implied by this new measure and consider appropriate mitigating measures. However, this should not warrant a compliance measure and instead, the ENA supports additional reporting of extreme events in annual compliance statements, or

information disclosures. If the Commission has a concern about the possibility of extreme events not being well managed, then these can be addressed through monitoring, for all EDBs.

152. Additional reporting of such events will provide transparency over the incidence of major events attributable to the causes identified. Adding a pass/fail test on this very discrete component of outage performance is overly intrusive and not consistent with the objective of the quality standards which is to ensure that distributors at least maintain the levels of quality provided historically (draft decision X76). The proposed compliance test is not a measure of material deterioration.
153. The proposed pass/fail test is also flawed, because it is based on a compliance standard which is derived from outage cause data which is not necessarily consistent with the outage cause data to be used for the assessment. For this reason, it may not be possible to effectively analyse breach outcomes or explain why the standard has been breached – particularly if this cannot be ascribed to a single cause.
154. Imposing a new standard on a subset of outage causes will place increased weight on the identification of causes. As it is only some causes which are captured within the standard, this weight may be disproportionate and could lead to unforeseen outcomes in the categorisation of outage causes⁸. This would be reduced if this because data was not subject to a pass/fail test. We understand that it may not be possible for auditors to retrospectively confirm the cause classifications with sufficient certainty to meet the compliance standard test.
155. If information is to be provided about extreme events associated with these selected causes, the information requirements must be more targeted than those included in the Draft Determination. A reasonable and proportionate approach would be to require information about the event, the circumstances which led to the event and any relevant information such as:
 - a. The state of the network at the time the event occurred
 - b. Analysis of asset replacement and renewal or asset condition relevant to the asset failure which led to the event
 - c. The human errors which led to the event
 - d. Any subsequent investigations into the event.

6.2.6 Reliability incentives

156. A number of changes to the revenue linked incentive scheme are proposed, including the following:
 - a. The incentive scheme applies to SAIDI not SAIFI
 - b. Incentive rates are derived with reference to VOLL, but discounted to \$5,200/MWh for the effect of IRIS and the effect of the quality standards
 - c. Incentive rates for planned interruptions are discounted a further 50%
 - d. Caps are set at the compliance standard, and collars at zero
 - e. Maximum revenue at risk is 2% of allowable net revenue.

⁸ Identifying the cause of outages often involves a degree of subjectivity – for example, if a pole is knocked down by a falling tree during high winds, this can be classed as arising from a vegetation, weather, or even poor asset cause.

157. We note that, as a consequence of the changes to the design of the revenue incentive scheme, along with the quality standards, we expect that:
- a. Incentive rates for unplanned outages will increase for remote rural networks with higher SAIDI, and reduce for more dense networks, relative to RCP2. This is due to the VOLL approach.
 - b. Incentive rates for planned outages will decrease relative to RCP2, largely due to the increase in the cap and decrease in the collar, combined with the de-weighting of the incentive.
158. However, as noted earlier, the incentive impact for planned outages is expected to be biased towards penalties for EDBs (rewards for consumers) because there is a disjoint between the planned targets and the work programmes included in the revenue allowances.

Design parameters

159. The reduction in the financial incentive rates on planned outages is supported. The ENA has previously submitted for financial incentives on planned outages to be removed.
160. The ENA acknowledges that removing the financial incentives from SAIFI avoids a potential overlap between the SAIDI and SAIFI measures. However, we understand that customers are interested in outage frequency as well as outage duration. One interpretation of this change is that the Commission considers consumers are more concerned with SAIDI than SAIFI, and therefore the financial incentives on EDBs are focused on this one measure. If that is the case, it would be useful to clarify whether this interpretation also applies to quality standard compliance.
161. As mentioned previously, there is a disconnection between the planned SAIDI incentive scheme and the DPP allowable revenue. Unless this is corrected it will result in EDBs incurring/customers receiving financial penalties or rewards for delivering the work programmes included in DPP allowable revenue. As the targets are below recent levels of planned outages for most companies, they are not reflected of the current or expected level of activity, and do not reflect current best practice.
162. This is not appropriate as EDBs must have DPP standards which can practically be achieved, are consistent with industry best practice and meet the expectations of earning normal returns. Otherwise there is a risk of a net loss outcome, particularly as compliance with the DPP is embodied in the legislation, with potentially serious consequences for non-compliance.
163. IF EDBs are unable to deliver their work programme with a reasonable expectation of meeting the planned outage SAIDI target they will either:
- a. Incur financial penalties via the incentive scheme
 - b. Incur the costs and uncertainties associated with a DPP quality standard variation application
 - c. Incur the costs and uncertainties of a CPP application.
164. Accordingly, the ENA submits that the quality incentive scheme for planned outages is revised to ensure the targets, caps and collars are consistent with the capex and opex allowances included in allowable revenue. A partial solution to this problem is to use a five-year historical period for the planned targets rather than the proposed ten years. We have also previously promoted a five-year forecast approach for this purpose.
165. In addition, the incentive scheme could be modified to better the target incentives. Examples include:

- a. A deadband (for planned and unplanned SAIDI) around the targets to carve out from the incentive scheme small variations in annual SAIDI performance
- b. Stepped incentive rates, for example with higher rates above a +/-1 standard deviation threshold.

Revenue at risk

166. The ENA does not support increasing the revenue at risk to 2% of MAR. A higher revenue at risk could lead to substantial price increases or reductions, and profit levels which are materially above or below target or 'normal returns'. This is because a significant portion of the revenue at risk depends on unplanned SAIDI, and the events which lead to unplanned outages are subject to significant variation and are often outside the control of EDBs.
167. The increase in revenue at risk at the same time as introducing such significant changes to the quality standards creates significant uncertainty. It is not clear how EDBs will perform under the new standards, and whether there may be unintended consequences or perverse incentives which are exacerbated by the increased revenue at risk. Accordingly, the ENA supports retaining the revenue at risk at 1% of MAR for the next regulatory period.

VOLL based incentive rates

168. The ENA acknowledges that VOLL based incentive rates generate more consistent financial incentives between networks, than the approach adopted for RCP2 and therefore supports this concept. The consequence of this is that there are significant step changes in incentive rates between the proposed RCP3 decision and the RCP2 decision. This is particularly severe for the least dense networks.
169. The VOLL rates are discounted to achieve a 26% IRIS retention rate and a further 20% for a compliance incentive factor for unplanned outages. The reasons for the selected discounts are not well articulated in the paper:
- a. The 26% retention rate suggests that the financial incentives are intended to apply for five years, however the financial incentives are temporary incentives, ie: they reflect performance in a single year, and the incentives on investments (which may impact reliability performance) are captured in the opex and capex IRIS.
 - b. The decision to select a 20% compliance incentive factor is not supported in the paper.
170. A further 50% discount is applied to the incentive rates for planned interruptions to reflect the lower levels of disruption for customers from planned outages. We support a 50% discount for planned outages which is consistent with RCP2. As noted above we do not support further disaggregation of planned outages (eg: notified and intended) for compliance and incentive purposes.
171. In spite of the above however, the ENA supports reducing the VOLL rates for the incentive scheme because this will help to manage the risks of:
- a. incentives for reliability improvements which are not consistent with consumer preferences on each network
 - b. significant year on year volatility in incentive penalties/rewards for small variances in reliability.

6.3. Enforcement guidelines

172. The publication of Enforcement Guidelines for quality standards is critical to improve regulatory certainty and stakeholder understanding of the consequences of non-compliance, reduce compliance costs and complexity, and ultimately improve quality of service regulatory outcomes.
173. This is an important recommendation of the QoS working group. Currently a number of EDBs are subject to investigations following breaches of RCP2 quality standards, however there is very little transparency over the process, information requirements, criteria which is being used to assess these breaches, and the consequences and/or breach remedies being considered.
174. This uncertainty is hindering EDB efforts to understand the no material deterioration standard which the Commission has set as the underlying principle for DPP quality standards and the incentives for managing compliance. This is contrary to the long-term interests of consumers because EDBs could, as a result, choose to avoid breaches at all cost, and as a result increase the prices that consumers pay, possibly above those that they are willing to pay. There is very real risk that the AMPs for some companies are misaligned with the criteria that apply to assessing quality breaches.
175. Without more guidance, the alternative is for EDBs to make operational and investment decisions on the basis of good asset management practice, consistent with the long term interests of consumers, but run the risk of breaching from time to time, and incurring investigation costs, reputational damage and judicial penalties.
176. We note that it is proposed that specific information is provided to the Commission and published when a compliance standard is breached. We have concerns about:
- a. Whether it is appropriate or practical to publish all of the requested information (for example this may include five years of planned outage data, by outage). We understand why the Commission requires this data for its enforcement function, but not why this data is required to be published, in addition to the information in compliance statements.
 - b. The breadth of the information specified (for example 'any analysis of' trends in asset condition, asset replacement and renewal etc). On face value this appears to include information relevant to the entire network fleet, and entire network footprint. This would not be practicable or useful to publish and may not be targeted at the causes of the breach.

6.4. Other quality measures

177. The ENA supports broader measures of service quality from a consumer point of view and we are disappointed that our suggested package of measures was not included in this reset. We understand that data availability is an issue for setting new customer service measures and therefore we support plans to expand Information Disclosures to include customer service measures. Our earlier research, including consultation with customers and other stakeholders, indicated that the following services were valued by customers, and were typically measured by EDBs:
- a. The average time taken for an EDB to quote new connection applications
 - b. The proportion of planned outages notified in advance.

178. In addition, the QoS working group recommended moving towards more disaggregated reporting of network reliability data and moving towards capturing (or estimating where necessary in the short term) and reporting of LV network performance.

7. Other matters

DPP flexibility vs CPP

179. The updated draft DPP3 decision due September needs to consider the just released Interim Climate Change Committee report recommending 'accelerated electrification'. It seems that EDBs will need to prepare for change during the DPP3 period which will involve costs and divert resources from business as usual approach under the DPP if government policy objectives are to be supported.
180. This raises the subject of just how the costs of these preparations could be included in the RCP3 regulatory period. The ENA has discussed elsewhere in this submission the need for flexibility in the DPP3 arrangements to accommodate technology developments such as LV network monitoring but these too could form part of the 'how do we accommodate major change in the DPP framework' discussion.
181. ENA members have been considering there may be an intermediate way (between the DPP and a CPP) of bringing medium sized investment projects into the regulatory process without the expense and time involved in a CPP. Wellington Electricity showed the way with its earthquake readiness CPP, founded on a government policy statement. Responding to the government ICCC electrification policy seems like a similar situation, where an 'in-between' business case/project regulatory structure is established to leverage off the low-cost DPP process but avoid the expensive CPP process.
182. The solution may fall under the existing DPP process, but the business case evaluation could take place at any time within a DPP timeline (not just at reset dates) providing the flexibility to EDBs to respond to government/NZ Inc policy objectives.

CPP application windows

183. The ENA supports the proposal to extend CPP application windows for RCP3. We note that because the application windows extend beyond 31 March, there is an inconsistency which emerges with the CPP IM definitions of 'Next Period' and 'Assessment Period'. This is because these definitions refer to the year of application and as a result, these periods are reduced by one year where applications are made after 31 March. This is inconsistent with the CPP information requirements, including the Schedule E templates. This issue can be addressed with IM variations by the CPP applicant; however, we suggest that a better, more certain, and lower cost approach, would be to amend the IM definitions to clarify that they include the two disclosure years prior to the CPP commencement date.

8. Appendix – members support

The Electricity Networks Association makes this submission along with the explicit support of its members, listed below.

Alpine Energy
Aurora Energy
Buller Electricity
Counties Power
Eastland Network
Electra
EA Networks
Horizon Energy Distribution
Mainpower NZ
Marlborough Lines
Nelson Electricity
Network Tasman
Network Waitaki
Northpower
Orion New Zealand
Powerco
PowerNet
Scanpower
The Lines Company
Top Energy
Unison Networks
Vector
Waipa Networks
WEL Networks
Wellington Electricity Lines
Westpower

9. Appendix – ENA Innovation proposal

184. The ENA welcomes the Commission’s recognition of the increasing importance of innovation in the way distributors invest in and operate their networks. While innovation holds many potential benefits, we see three broad categories as particularly relevant:

- a. **Better service.** Innovative solutions are key to improving customers’ service quality and offering them a wider range of options in how they can manage their energy consumption.
- b. **Managing costs.** Innovation will be increasingly essential in helping to manage electricity costs down while ensuring the ongoing stable, safe and efficient operation of our networks. This will become increasingly important in the face of substantially changing energy consumption and generation patterns.
- c. **Increasing customer flexibility.** Innovative solutions are essential for the shift to effective open access networks. Through developing open access networks, distributors will help ensure maximum flexibility to end-users (consumers, generators, aggregators, etc.) in how electricity is used, generated, stored and traded. This flexibility will be a key enabler for end-user driven solutions that can mitigate climate change – with a potential for reducing carbon emission that vastly exceeds any reduction distributors can achieve in their own businesses.

185. We agree that current levels of innovation in electricity distribution are low by general industry standards, and insufficient to realise the potential available benefits. More expenditure on innovative practices would be in the long-term interests of consumers.

186. We also agree that among the reasons for this low level of innovation investment are the higher risk that these projects pose, compared with conventional network investments. The potential success of and returns on these projects:

- a. are inherently uncertain,
- b. may not be realised within a regulatory period, and
- c. may accrue to parties other than the distributor who initiated a project.

187. The proposed new recoverable cost for innovation expenditure represents a significant step forward for the electricity distribution industry and its customers.

188. However, we believe that the current proposal may be too limited and therefore won’t be as effective as it could be. Accordingly, we propose a more far-reaching, cost-effective alternative to address these issues, that would encourage collaboration between distributors and the wide sharing of potential innovation benefits by all New Zealand electricity customers.

9.1. The Commission approach

189. The draft decision proposes a new recoverable cost term, that will:
- a. target expenditure on innovative⁹ projects (opex or capex¹⁰);
 - b. require a 50% (or higher) contribution from the distributor;
 - c. be limited to 0.1% of a distributor's revenue (excluding pass-through and recoverable costs), which equates to approximately \$5m across all non-exempt distributors over the next regulatory period, excluding those currently on CPPs¹¹. This limit would apply cumulatively over the full regulatory period;
 - d. require a report from an independent engineer confirming that the planned expenditure meets a simple list of criteria, including a published business case and showing that the proposed project is expected to be innovative and potentially benefit consumers; and
 - e. apply to DPPs and CPPs.
190. It is proposed that business case for an innovation project and the ex-ante, signed statement from the independent engineer confirming that the project meets the Commission's criteria, will be attached to annual compliance statements.
191. The Commission will approve the recoverable cost based on the compliance report of the engineer stating that its criteria are met; and that the amount claimed is equal or less than 0.1% of the distributor's revenue, excluding pass-through and recoverable costs.

9.2. Shortcomings in the approach

192. While we recognise the positive intent of the proposed allowance, the ENA has a number of concerns, as discussed below (some of these were also identified by the Commission (draft decision, par 4.76)).
- a. A 0.1% revenue allocation will be too small to fund reasonably scaled research or development projects at most distributors, particularly the smaller ones. In some instances, the annual allowance will not even be sufficient to cover the cost of having an independent engineer's review and report on a proposed project.
 - b. While there is scope for small, agile innovation incentives to test and demonstrate concepts, in our experience the cost of a successful innovation project, particularly one that is designed to be reasonably broadly tested in the field before potentially scaling up, would be well beyond the scope of the proposed allowance for individual distributors, even after allowing for their contribution in kind. Many innovation projects also require substantial investment in enabling infrastructure, process or back-office changes.

⁹ The Commission defines innovation expenditure as that focused on a technology, process, or approach that could support the distribution service, which is novel for use in that type of situation for a New Zealand distributor (Draft decision, Par F13.3)

¹⁰ Any capex funded through the innovation allowance, will not enter a distributors' regulated asset base.

¹¹ The total for all non-exempt EDBs would be around \$6.3m over the DPP 3 period.

- c. The proposed innovation allowance offers no incentive for closer collaboration or sharing of outcomes between distributors. In general, such coordination of innovation activities and projects between distributors is limited, and the current proposal may exacerbate the position as its potential benefit will vary significantly between distributors. Overall:
- i. the degrees of innovation activity and expenditure varies widely between companies,
 - ii. the degree to which outcomes from innovation projects are shared varies greatly between companies, but is generally very limited, and
 - iii. there is a significant degree of overlap, and hence unnecessarily repeated learning, between projects led by different companies.
 - iv. the potential benefits from innovation projects are not widely shared across the New Zealand consumer base, even where these projects are intended for pure network improvements and not to enhance a distributor's earning potential. (This is in spite of the fact that most innovation projects are funded by consumers, as part of distributors' regulated activities.)
- d. As recognised by the Commission, the nature of innovation projects is such that in some cases they will not achieve their intended goals. However, there could still be significant potential benefit from the learning inherent to 'unsuccessful' projects. At present this learning is not widely shared, and there is significant risk that unsuccessful innovation projects will be repeated across the country.
- e. While some innovation projects are drawing in external service providers, in general the proposed allowance, particularly given its size and fractured nature, offers limited scope for effective collaboration with external parties.

9.3. ENA pooling proposal

193. The ENA believes that a more effective application of the proposed innovation allowance will be achieved by pooling the proposed allowance for all distributors and administrating this as a central innovation fund from which all distributors and their customers could benefit. This would allow effectively sized innovation projects, led by distributors who are best positioned to successfully conclude them. Learning and application details of innovation projects will be shared between all participating distributors.

194. Management and quality assurance would be led by the ENA Smart Technology Working Group, which has been successful at bringing together various distributors in working on the optimal direction for distribution innovation¹². An independent governance body will also be established.

195. Benefits we foresee from this approach would include:

Shared outcomes and customer benefits

- a. The wider New Zealand customer base will benefit from all the innovation initiatives conducted with the support of the innovation fund.

¹² A good example is the development of the Network Transformation Roadmap (www.ena.org.nz, April 2018)

- b. Through distributors sharing in the learning and outcomes from a wider range of innovation projects, and through the more appropriate scaling of these projects, the potential realisation of innovation benefits will be accelerated, throughout the country.
- c. Exempt EDBs will also be able to participate in the innovation fund – which is not possible under the current proposal.
- d. Alignment with other regulatory initiatives, for example the collaboration model discussed at the IPAG.

Enhanced project delivery

- e. Projects will be able to be scaled up to more efficient levels. This will allow more effective research and planning, conducting of trials under a wider range of scenarios and practical applications, more detailed field testing, and an improved analysis of the outcomes and focus on how these can potentially be scaled up.
- f. Enhanced coordination of innovation projects will avoid unnecessary duplication of activities in different parts of the country. This means that a greater variety of innovation could be pursued with the same available funding – which will broaden the potential customer benefit from the allocation.
- g. Projects will be sufficiently resourced to help ensure that they are effectively managed and delivered. They will also benefit by involving those parties who have most experience in delivering on the specific type of innovation project being delivered.
- h. Standardised industry solutions will be promoted, which has implementation and realisation benefits, as well as potential for further scale benefits.
- i. Increasing the scale of projects will enhance the potential for collaboration and co-funding with external parties, such as market participants, academia, suppliers and consultants.

196. We recognise that setting up and managing the proposed innovation fund will not be straightforward. Given the time constraints for making this submission, the ENA has focused on the broad principles that would guide how the fund could operate.

- a. The Commission will fully allocate the innovation revenue allowance for participating distributors¹³ every year, on an ex ante basis. Distributors will pay this allocation, along with their contribution in kind (set at the same level to their allowance) into the central innovation fund.
- b. Exempt EDBs can also participate, contributing the equivalent contribution in kind, proportional to their revenue.
- c. Distributors under a CPP can also participate, subject to the same Input Methodology rules that apply to non-exempt EDBs operating under a DPP. (This implies an additional recoverable cost allowance that is not currently included in CPP IMs.)

¹³ While we will strive to get full industry participation in the fund, it remains the prerogative of individual distributors to not opt in. Current indications from ENA members are that there is sufficient support to ensure the success of the proposed scheme.

- d. Governance of the fund will be provided by a dedicated ENA-led governance group, with representation from the Commission, distributors and independent technical or management experts. This governance group will determine the strategic direction and high-level objectives of the fund and ensure that these are being consistently pursued. It will conduct regular oversight meetings, with appropriate representation from the fund steering group (see below). This will include a review of and reporting on the financial position of the fund.
- e. The innovation fund will be administered by a steering group set up by the ENA under the auspices of the Smart Technology Working Group.
- f. This group will establish the ground-rules for submitting, prioritising, evaluating and approving innovation projects, in consultation with all participating distributors. In accordance with the Commission's requirements for the innovation allowance, this evaluation process will ensure that approved innovation projects demonstrate a well-considered business case, showing that the proposed project is expected to be innovative and will potentially benefit electricity consumers.
- g. Distributors can request funding for innovation projects from the innovation fund, based on their individual interests and strengths. These applications will be evaluated by the steering group who will, based on the established decision and prioritisation rules, make the decision to approve or reject an application. In some instances, the steering group may also directly propose projects, subject to the same rules, to pursue common industry goals.¹⁴
- h. Approved projects can be managed by an individual or group of distributors, involving external partners as appropriate.
- i. All projects will be subject to regular review by the steering group. Regular project progress meetings and feedback sessions, open to all participating distributors, will also be held. The steering group will have the right to intervene in projects, where deemed necessary.
- j. On completion of an innovation project, the project leader(s) will provide comprehensive feedback on the project, including on:
 - i. the intended and achieved scope of the project,
 - ii. project outcomes (positive or negative),
 - iii. expected customer benefits,
 - iv. detailed breakdown of project costs,
 - v. full details of design, implementation, procurement, impact on customers, working methodologies, skills or training requirements and enabling technologies required
 - vi. Customer feedback, where applicable
 - vii. Learnings and conclusions, including suggestions for further development or spin-off work

¹⁴ For example, it may be in the interest of the whole of industry to pursue some of the outputs identified in the ENA Network Transformation Roadmap.

- k. All completed projects will be fully evaluated by the steering group, to ensure that the innovation process and the operation of the innovation fund are continually improved.
 - l. Unused funds can be rolled over between regulatory years, and projects can straddle more than one year. However, there will have to be a reconciliation mechanism to account for un-spent funds at the end of the regulatory period.
 - m. Administering the fund will require effort and resources. The cost for this will be met from the innovation fund itself and will require effective controls and management. The cost for managing the innovation fund will have to be demonstrated to be more efficient than that of separately administering innovation projects, as per the current proposal.
197. The ENA accepts that the Commission will be unable to approve the proposed innovation fund before its full details have been finalised. We are therefore seeking approval in principle for the proposed fund, subject to an acceptable structure being developed and agreed within an appropriate period. Such approval will allow the ENA to proceed with the further development of the details and consultation on this. As part of such approval, provisional allowance for the innovation revenue would also be made for the DPP period.
198. We also understand that the Commission may want to be directly involved in assisting with the development of the details of the proposed innovation fund, and the ENA would be supportive of this, provided that accountabilities and responsibilities are well established from the start.
199. The full development of the details of the proposed innovation fund, and widespread consultation before its implementation, will likely extend into the first regulatory year of DPP3. It is proposed that the innovation allowance for this first year be proportionally adjusted.

9.4. Sufficiency

200. While pooling the innovation allowance into the proposed innovation fund will enhance the effectiveness of the overall industry innovation effort, the ENA believes that at the current proposed revenue level, it will still not be sufficient to accelerate innovation initiatives to the extent required. We therefore propose that, assuming the required outcomes are achieved, the initial allowance of 0.1% of revenue be increased on an annual basis, to 0.5% of revenue at the end of the DPP period.
201. In the near future, we anticipate the need for substantial changes in distributors' investment and operating patterns. This will be driven by an increasing emphasis on reducing carbon emissions, customers' expectations of increasing flexibility in how they use and procure electricity, and the realising of the benefits that emerging technology can bring to networks and customers alike. Areas where this will manifest include:
- a. The developing and operating of open access networks (a necessary precursor to any form of Distribution System Operator).
 - b. The accelerating electrification of New Zealand's vehicle fleets.
 - c. Increased conversion of process heating from carbon-based fuels to electricity.
 - d. Ongoing increases in the uptake of local generation and storage, and an associated increase in electricity trading activity across distribution networks.

e. Increasing network automation, self-healing and islanding networks.

202. Delivering to these requirements, especially in a cost-effective manner¹⁵, will require widespread innovation from distributors. While the actual large-scale uptake in some of the areas noted above may still be some years off, the developing and trialing of appropriate innovative solutions or enablers is required now – in the very next regulatory period. This is necessary not only to ensure that the industry is ready to meet the coming changes in an effective and timely manner, but also to realise the immediate benefits already possible by adopting innovative solutions.
203. The ENA therefore proposes that the Commission increases the innovation allowance in the later years of the DPP period, allowing it to first gain sufficient confidence that the fund is achieving its stated goals to accelerate innovation, that customers are widely benefiting, and that the expenditure is well managed.
204. Even at the proposed 0.5% level by the end of the DPP period, we note that this is still a comparatively very modest figure for research and development. However, we accept that this would be appropriate, considering that it will be a new allowance and that the effectiveness and benefit of the innovation fund will need to be demonstrated to the satisfaction of all stakeholders before it can realistically be expanded. Even at this relatively low level of revenue, we anticipate the fund to go a considerable way towards accelerating much-needed innovation in the electricity network space.

¹⁵ Attempting to achieve these outcomes through conventional network investment, to the extent that it is even possible, will be significantly more expensive.

10. Appendix – NERA report on OPEX forecasting