



TRANSPOWER

Waikoukou
22 Boulcott Street
PO Box 1021, Wellington
New Zealand
www.transpower.co.nz

27 June 2019

Dane Gunnell
Manager, Price-quality Regulation
Commerce Commission
Wellington

By email: regulation.branch@comcom.govt.nz

Dear Dane

Submission on Transpower's individual price-quality path from 1 April 2020: draft decisions and reasons paper

This letter and the attached supporting information form Transpower's submission on your document *Transpower's individual price-quality path from 1 April 2020: draft decisions and reasons paper*, released on 29 May 2019.

There has been a robust process to get to this point. We subjected our proposal to a high level of internal challenge, building on work in our earlier Regulatory Control Periods (RCPs). Our work has been validated by the Independent Verifier. Our submission focuses on the relatively few areas where the Commission has indicated it is not satisfied, and where clarifications and changes will result in an improved individual price-quality path (IPP).

The existing regulatory settings, developed over the course of RCP1 and RCP2, have driven positive change in our business – efficiency and a strong focus on long-term benefits for consumers. Our RCP3 proposal, with the clarifications and changes we propose in this submission, will continue to advance these objectives. Our key objective for RCP3 is to continue developing our asset management practices. We will identify innovative ways to build and maintain our grid. We know that the Commission and consumers expect us to deliver to this plan and we are committed to delivery.

Our submission focuses on three themes:

1. Making sure the regulatory settings for RCP3 don't prevent Transpower from responding dynamically to a changing environment and enhance consumer interests.
2. Giving the Commission comfort that our proposal meets the expenditure objective, including by addressing those concerns raised by the Independent Verifier/EMCa relating to ICT, insurance, E&D and maintenance expenditures.
3. Ensuring clarity and certainty for both Transpower and the Commission on our compliance obligations and our ability to achieve them.

These themes are examined in more detail in the submission and support material attached.

Yours sincerely

Alison Andrew
Chief Executive

Contents

Contents.....	2
Tables.....	2
Figures.....	2
Executive Summary.....	3
1. Quality standards and approach to compliance.....	5
2. ICT capex and opex.....	10
3. Insurance opex.....	19
4. Enhancement and Development base capex.....	21
5. Maintenance opex.....	22
6. Stakeholder engagement and reporting requirements.....	23
7. Grid output measures.....	26
8. Summary of key submission points.....	29
Appendix A. Reporting performance against asset health measures.....	32
Appendix B. Pooling approach for GP1 and GP2 quality standards.....	34
Appendix C. Insurance opex: supporting analysis.....	37
Appendix D. Insurance opex: actuary and broker reports.....	39
Appendix E. Technical clarifications.....	48

Tables

Table 1: Preliminary high-level impact assessment of range of ICT lifecycle capex reductions (\$m, constant 2017/18).....	14
Table 2: Benefits-driven ICT capex and associated impacts (\$m, constant 2017/18).....	15
Table 3: Preliminary high-level impact assessment of range of benefits-driven ICT capex reductions (\$m, constant 2017/18).....	16
Table 4: Guidance in the draft decision on the target rate of false positives.....	35
Table 5: Likelihood of false positives under draft decision and Transpower recommendation.....	36
Table 6: Our understanding of Commission’s calculation of adjustment to insurance opex.....	37
Table 7: Applying Commission’s implied ratio on a like-for-like risk/insurance policy basis.....	38
Table 8: Inconsistencies in recalculated GP1 and GP2 incentive rates.....	48

Figures

Figure 1: Asset health actual performance against target.....	32
Figure 2: Likelihood of false positives (per measure for full RCP).....	36

Executive Summary

A more detailed summary of submission points is set out in section 8 of this document.

Commission draft decision	Summary of our response
Section 1: Quality standards	
Section 1.2: Asset Health Minimum asset health quality standards specified.	We propose that asset health measures are implemented as reporting requirements only.
Section 1.3: GP1 and GP2 (Number and average duration of unplanned interruptions) For the grid performance measures: <ul style="list-style-type: none"> • Transpower’s proposed targets, caps, collars for GP1 and GP2, • for quality standards, set compliance criteria using a pooling approach, and • to set reporting requirements whenever a POS is outside the collar value. 	We propose amending the pooling rule to 3 out of 6 measures not met for 2 out of 3 years (instead of the draft decision’s 2 out of 6 pooling rule).
Section 1.4: GP-M (Momentary interruptions – interruptions less than one minute) Introduce a GP-M measure with associated quality standard and reporting requirement for GP-M.	We propose reporting should only be on trends, insights and notable events.
Section 2: ICT capex and opex	
Section 2.3: ICT lifecycle capex Reduce ICT lifecycle capex by \$14.2m.	The ICT lifecycle capex should not be reduced.
Section 2.4: Benefits-driven ICT capex Reduce ICT benefits-driven capex by 50% (\$18.4m).	The benefits-driven ICT capex should not be reduced.
Section 2.5: IST-related Business Support opex Reduce Business support opex by \$5.9m.	The IST-related Business Support opex should not be reduced.
Section 2.6: Cybersecurity The Commission recommends Transpower consider aligning itself with international cybersecurity standards.	Cybersecurity-related ICT capex would be indirectly impacted by draft reductions in other ICT areas, such as lifecycle capex. Transpower aligns itself with international cybersecurity standards.
Section 3: Insurance opex	
Reduce insurance opex by \$15.8m.	The insurance opex should not be reduced.
Section 4: Enhancement and Development base capex	
Reduce uncertainty surrounding Transpower’s capex programme using a base capex adjustment mechanism (BCAM).	We agree the BCAM should be amended so it is a workable mechanism to ensure dynamically efficient investment during the RCP3 period. We will submit as part of the separate consultation process.
Section 5: Maintenance opex	
Apply a forecasting adjustment to predictive maintenance opex allowance of \$6m.	The forecasting adjustment should not be applied to predictive maintenance opex.

Section 6: Stakeholder engagement and reporting requirements	
<p>Section 6.2: Reporting timelines</p> <p>Introduce new reporting requirements, including:</p> <ul style="list-style-type: none"> • for many new reports to be submitted annually, within 80 working days from year end with the Annual Compliance Statement, and • to allow 42 working days to report comprehensively on interruptions both longer than 12 hours and which cause loss of supply greater than one system minute. 	<p>The reporting time for new annual reporting should be 120 days from year end, with a means by which Transpower can apply for more time to meet a reporting requirement if reasonably justified.</p> <p>The requirement to report within 42 days on qualifying interruptions should feature a general provision under which Transpower can apply for more time if reasonably justified.</p> <p>A variety of technical changes will be suggested for some of the new reports in our submission on the IPP to enhance clarity and assure value.</p>
<p>Section 6.3: Reporting on grid output measure CS1</p> <p>Disclose the post-interruption event survey results as a new trial measure CS1.</p>	<p>This reporting should be annual, and anonymised.</p>
<p>Section 6.4: Reporting progress in developing asset health modelling</p> <p>Require Transpower to report annually on progress towards implementing asset health models, risk-based decision-making frameworks and asset life extension model.</p>	<p>Reporting on Transpower’s developing asset health modelling should be against the roadmap for the development of asset and network risk modelling that the draft decision requires us to develop by 1 October 2020.</p>
<p>Section 6.5: Reporting for an asset health pilot scheme</p> <p>Require annual “disclosure of how Transpower would have performed in relation to the proposed revenue-linked asset health pilot scheme, had the scheme existed.”</p>	<p>There should be no requirement to report against the RCP2 pilot scheme during RCP3.</p>
Section 7: Grid output measures	
<p>Section 7.2: Normalisation for force majeure events</p> <p>The draft decision is to normalise out the effect of certain events from the quality measures.</p>	<p>We support the decision to normalise out the effect of certain events from the quality measures but note the proposal has not been incorporated into the draft IPP.</p>
<p>Section 7.3: AP1: forced outage allowance</p> <p>Adjust Transpower’s proposed target, cap and collar for the AP1 measure.</p>	<p>The annual forced outage allowance should not be reduced from 0.5% to 0.25%.</p>
<p>Section 7.4: AP1: approach for scheduled outages</p> <p>Apply a proposed target to all five years of RCP3, with the impacts of Pole 2 replacement in a given year netted out to a maximum of 0.7% unavailability in a given year.</p>	<p>For AP1 the HVDC availability target should be:</p> <ul style="list-style-type: none"> • 98.5% for two of the RCP3 years when the planned Pole 2 life-extension programme of work is not expected to affect the target, and • 97.8% for three of the RCP3 years when the planned Pole 2 life-extension programme of work will be carried out. <p>Transpower will elect in which three years the lower 97.8% target will apply.</p>
<p>Section 7.5: AP5: N-Security reporting</p> <p>Retain (but rename) the RCP2 availability measure PMD5, which measures the extent to which Transpower places customers on N security.</p>	<p>This reporting should not be adopted.</p>

1. Quality standards and approach to compliance

1.1 Introduction

In this section we comment on the following matters in the draft decision:

- quality standards for asset health,
- quality standards for GP1 and GP2 using a pooling approach, and
- a quality standard for momentary interruptions, and annual reporting requirements (GP-M).

The Commission's draft decision represents an evolution of the RCP2 approach. We appreciate and support the Commission's efforts to refine and develop the quality standards to ensure they better support our shared objective of achieving long-term benefits for consumers and incentivising efficient behaviour. Our comments below largely focus on calibration of the standards.

Our proposals in response to the Commission's draft decision reflect the following themes:

- The Commission has clearly articulated what it is trying to achieve with the quality standards. We have proposed some adjustments to ensure the standards do in fact achieve the Commission's objectives. Our proposed adjustments are based on our expectation of how the Commission's draft decision would play out in RCP3.
- We have learned from our experience in RCP2 that it is critical for us to understand exactly what we need to do to comply, and that compliance is reasonably within our control through competent grid management. This is important to Transpower in its corporate capacity, but also to management and the Board given the personal responsibility individuals have for compliance with the price-quality path. We have therefore given careful consideration to the risk that the quality standards, as currently proposed, could:
 - restrict our efforts to innovate in our asset management practices, or
 - result in non-compliance as a result of circumstances outside of Transpower's control, or which do not reflect fault on the part of Transpower.
- It is also apparent from our experience in RCP2 that quality standards must be carefully designed and calibrated to ensure Transpower is not required to act against the interests of its customers and consumers in order to comply. This is particularly important in relation to measures that do not directly measure service performance or reliability – such as asset health, which is better described as a leading indicator of future performance. We share the Commission's belief that transparency around asset health is important, but the current design of the asset health measures risks creating perverse incentives.

1.2 Asset health

1.2.1 Commission draft decision

The Commission proposes to adopt minimum asset health quality standards set at 25% of the range between the proposed trial asset health measures' collar values, and what this would be without intervention in each asset class for each year of RCP3. The Commission's draft decision essentially aims to measure our delivery of our RCP3 plan and the forecast change in our Asset Health Index (AHI) that we expect to result.

1.2.2 Our response

We have real concerns that implementing asset health-based quality standards will:

- require Transpower to take actions in order to comply that would not be for the long-term benefit of consumers, and

- expose Transpower to a risk of non-compliance in circumstances outside of our control and that involve no fault on Transpower's part (false positives).

We therefore propose that the asset health measures be implemented as reporting requirements only. A reporting requirement will equally achieve the Commission's stated objectives while avoiding the risks we have identified.

1.2.3 Our concerns with the Commission's approach

Risk of false positives

The Commission's approach establishes a strict cap on the percentage of assets with AHI>8. The implication is that if Transpower fails to comply with the cap, it is allowing asset health to degrade below a minimum acceptable standard. But AHI scores are also influenced by factors other than Transpower's delivery of its RCP3 capex plan, including:

- updated asset condition data from field inspections,
- refinements in asset health models (e.g. improved understanding of deterioration factors), and
- innovation and development of our asset strategies.

There is a material risk Transpower will fail to comply with the asset health quality standards, not because we fail to deliver our RCP3 planned capex for these asset classes, but because of improved data or innovations in asset management strategies (as we describe in more detail below).

The Commission appears to acknowledge this in paragraph F249 of its draft decision. We infer from the fact that the Commission has nonetheless implemented quality standards that it believes the threshold it has applied (25% of the range between no investment and forecast outcomes) provides sufficient latitude to avoid false positives. But our experience is that asset health scores can change significantly.

Transpower's asset management practices are on a maturity pathway, including improving our asset data and development of models and standards. This journey has been strongly supported by the Commission and is far from over. Our quality standard metrics are continuing to change and therefore do not provide the certainty required to serve as a suitable basis for measuring performance. We see a substantial risk of false positives with the Commission's current approach.

We have two major innovation projects underway in respect of major asset classes which could result in material changes to some of our asset class strategies during the RCP3 period. Being judged against inflexible standards will restrict our capacity to bring such innovations into effect. Such an outcome would not support our joint objective and would not be in the long-term interests of consumers.

Implementation of the proposed asset health quality standards therefore exposes Transpower to a risk of enforcement action in circumstances where non-compliance does not necessarily reflect increased risk to service reliability.

It is not a sufficient response that the Commission has a discretion whether or not to take enforcement action in the event of non-compliance:

- Compliance with the price-quality path is a strict liability requirement, so even if the Commission doesn't act, Transpower will have breached a statutory obligation, which is a serious matter with governance and reputational implications.

- Reliance on Commission enforcement discretion creates an unacceptable level of uncertainty for Transpower. That uncertainty extends to the possible consequences for individual directors and officers.

Risk of inefficient incentives

Implementation of asset health quality standards dis-incentivises Transpower from taking actions that are in the long-term interests of consumers.

Transpower's forecast AHI scores for the specified asset classes are based on Transpower's current lifecycle asset management strategy. Implementing AHI-based quality standards effectively means Transpower is dis-incentivised from departing from current asset strategies (for the relevant asset classes) in favour of ones which provide better consumer benefits. Transpower should be incentivised to innovate and explore changes to its lifecycle asset management strategies that might reduce costs without materially changing asset risk profiles.

As an example, Transpower's current approach to maintaining transmission towers is its tower painting programme, requiring substantial ongoing expenditure. Painting towers at an early stage avoids the need to carry out more costly steel refurbishment later. However, if it became apparent that undertaking periodic refurbishment or replacement of towers was more economic than tower painting then we should have the flexibility to change our approach.

We have an innovation pilot underway looking at exactly this issue. We are testing a prototype, automated recommendation system that digitally maps each of our current assets and analyses the most economic option for managing corrosion, based on the specific corrosion, environmental, and economic profile for each individual tower using the latest tools and technologies available. A similar piece of work is underway for managing our 65,000+km of ageing conductor. If these innovation initiatives mature into a consistent part of our business operations, we expect there would be a material impact on our AHI.

The Commission has signalled it wants Transpower to continue its asset management journey, including improving our asset health models. We encourage the Commission to adopt our alternative asset health proposal, which would incentivise this type of work.

1.2.4 Our proposal

We propose the asset health measures should be a reporting requirement only, and that no measure has an enforceable quality standard. This is because:

- As described above, asset health quality standards dis-incentivise innovation in asset management strategies and expose Transpower to a risk of investigation and enforcement in circumstances where neither would be warranted.
- The principal objective of creating transparency around delivery of our RCP3 plan is achieved by a requirement to report annually. This visibility creates accountability for Transpower and provides the information to inform future intervention, were that necessary.
- Given the very slow rate at which our asset population health declines, annual compliance with an asset health quality standard is inappropriate. A reporting requirement (including the proposed half and full-term control period reviews) allows the Commission to understand the nature and impacts of any asset management strategy changes Transpower has introduced, and whether any under-delivery by Transpower is degrading asset health and increasing service reliability risk in future regulatory periods. This provides an opportunity for dialogue between Transpower and the Commission, or intervention at the next reset or review.

A reporting requirement therefore achieves the Commission's objectives whilst avoiding the risks we have identified. In appendix A, we set out our proposed approach to annual reporting against the

asset health measures. We propose an approach that clearly explains the reasons for any changes in asset health measures.

This submission differs from our RCP3 proposal. We are no longer proposing revenue-linked measures. This change is the result of our experience (after our proposal was submitted) engaging with the Commission regarding reported breaches of our RCP2 asset health quality standards.

1.3 GP1 and GP2 (Number and average duration of unplanned interruptions)

1.3.1 Commission draft decision

For the grid performance measures applying to RCP3, the Commission is proposing to:

- use Transpower’s proposed targets, caps, collars for GP1 and GP2,
- set compliance criteria using a pooling approach, and
- set reporting requirements whenever a POS (point of service) is outside the collar value.

1.3.2 Our response

We propose amending the GP1 and GP2 quality standards pooling rule to 3 out of 6 measures not met for 2 out of 3 years (instead of the draft decision’s 2 out of 6 pooling rule for the same period).

The proposed pooling approach is a welcome evolution of the RCP2 approach. Pooling will help to filter out false positives – i.e. cases where a breach is triggered due to statistical variation rather than deterioration in underlying performance. This was, in hindsight, a shortcoming of the disaggregated quality standards applied in RCP2.

However, we consider that the 2 out of 6 measures (not met for 2 out of 3 years) pooling rule:

- will result in false positives in excess of the Commission’s stated expectations, and
- will likely result in unduly frequent contraventions, leading to costly investigations that are not in the long-term interest of our customers and consumers.

Our analysis (set out in more detail in appendix B) shows that amending the rule to 3 out of 6 measures not met (instead of the draft decision’s 2 out of 6) would result in a false positive rate that is consistent with the draft decision’s stated objectives. We estimate the likelihood of a false positive across the four revenue-linked measures (GP1, GP2, AP1 and AP2) to be 50-70% under the approach in the draft decision. Our proposed amendment to the pooling rule results in a 25-30% likelihood of a false positive across the four revenue-linked measures. We think this approach will improve the operation of the GP1 and GP2 measures for the benefit of the Commission, Transpower, customers and consumers.

1.4 GP-M (Momentary interruptions – interruptions less than one minute)

1.4.1 Commission draft decision

The draft decision is to introduce the GP-M measure with an associated quality standard and a reporting requirement for GP-M.

1.4.2 Our response

We do not support a quality standard for momentary interruptions.¹ We propose that reporting on trends, insights and notable events is appropriate.

Increased momentary interruptions do not necessarily indicate a poor or deteriorating level of service. Increased momentary interruptions can in fact be a sign of improving performance. As we replace our existing protection assets at 20 to 25 years, the replacements inevitably provide greater functionality (often now including auto-reclose) than the old assets. When our customers are on N-security (by design or outage) an auto-reclose momentarily interrupts supply to clear a fault. Auto-recloses help to prevent longer interruptions.

Annual reporting on the causes and impact of each interruption would be disproportionate due to the sheer volume of momentary interruptions which occur, and because the cause of many interruptions is often unknown. We propose reporting should be on trends, insights and notable events, which will be more useful than granular, per-event reporting.

¹ Momentary interruptions are those interruptions that are less than one minute.

2. ICT capex and opex

2.1 Summary

In this section we comment on the following matters in the draft decision:

- ICT lifecycle capex,
- Benefits-driven ICT capex,
- IST-related Business Support opex, and
- cybersecurity.

2.2 ICT capex introduction

In its draft decision, the Commission reduced our proposed ICT capex by \$32.5 million to \$113.6 million.²

The proposed reduction in ICT investment should be considered in light of emerging technology trends such as Internet of Things (IoT), expanded use of analytics and machine learning and automation. These technologies are likely to be important enablers of the further development of asset management capability as well as our ability to manage the increasingly complex grid. Underinvestment in ICT capex would constrain our ability to respond to these trends. It is important that we continue to innovate and take advantage of new technology with the uncertain future outlined in *Te Mauri Hiko*.³

We think the reduction is not justified for the following reasons:

- The draft decision is informed by a report by EMCa that contains material inaccuracies and incorrect assumptions.⁴ We commented on EMCa's report after the draft decision was published.⁵ While some of the errors have been corrected in the published EMCa report, most have not.⁶ We do not repeat our detailed response to the EMCa report here. However, our view is that, in reaching its final decision, the Commission should consider the totality of our feedback including our prior responses to the EMCa report.
- We differ from the view expressed in the draft decision regarding the level of detail required to substantiate a capex proposal. Our approach is consistent with good ICT planning practice (as confirmed by the Independent Verifier). Our proposal is underpinned by detailed

² The draft decision is \$113.6m. Our proposal was \$146.1m. The reduction therefore is \$32.5m rather than the \$32.6m stated in the draft decision document.

³ Transpower (2018). *Te Mauri Hiko: Energy Futures*. This report can be accessed on the Transpower website at <https://www.transpower.co.nz/resources/te-mauri-hiko-energy-futures>.

⁴ EMCa (May 2019). *Transpower Regulatory Control Period 3 Proposal: review of aspects of the proposed ICT expenditure, report to New Zealand Commerce Commission*. This report can be accessed on the Commerce Commission website at https://comcom.govt.nz/_data/assets/pdf_file/0031/153868/EMCa-report-to-Commission-on-Transpower-ICT-expenditure-May-2019.PDF

⁵ Transpower (10 June 2019). *Letter to Commerce Commission: interim feedback on EMCa review of Transpower's proposed ICT expenditure*. This letter can be accessed on the Commerce Commission website at https://comcom.govt.nz/_data/assets/pdf_file/0032/153869/Transpowers-feedback-on-EMCa-report-10-June-2019.PDF

⁶ Ibid. The published EMCa report excludes any corrections where EMCa considered Transpower had provided a clarification, new information or had a difference of opinion.

information. But, in general, it is not cost effective to prepare detailed business cases for ICT projects projected to start beyond a one-year time horizon.

- Our RCP3 estimation for capex expenditure is P50 based, which means that any estimation uncertainty is expected to cancel out.⁷ Therefore, there is no basis for portfolio level adjustments to account for estimation uncertainty.
- Our RCP3 proposal incorporated a 14% reduction from our RCP2 starting point, a reduction achieved through an extended internal challenge process. This reduction is in line with EMCa’s expectation of an “estimate challenge to be at the upper end of the 10-20%”.
- We also undertook estimation challenge at the project level to ensure a reasonable estimation of project cost, given what we know today, and based on recent experience of similar projects.
- The draft decision is inconsistent in its treatment of costs and benefits. If the proposed reduction is adopted, the result will actually be to increase both opex and capex. The increases will be due to:
 - the expected benefits factored into the RCP3 expenditure proposal have to be reversed as those benefits will not accrue, and
 - the need to maintain unsupported systems. This is because any capex reduction will need to be offset by an increase in the opex allowance.
- The draft decision does not consider the impact the reduced spending would have on benefits from ICT capex projects as we have not yet prepared detailed business cases for the projects concerned. We have prepared additional high-level information assessing the impact of a reduction in these not-yet-quantified benefits, as set out below. In general, a reduction in these benefits will constrain our ability to meet our RCP3 obligations and prevent us from taking advantage of new technologies, such as efficiencies from automation and insights from data mining.

The following four sections set out the main reasons why the Commission should refrain from moderating our RCP3 ICT proposal.

2.3 ICT lifecycle capex

2.3.1 Commission draft decision

The Commission’s draft decision is to reduce ICT lifecycle capex by \$14.2 million.

2.3.2 Our response

The ICT lifecycle capex should not be reduced. This is because:

- The reduced expenditure allowance for lifecycle capex is insufficient to allow us to deliver key business-enabling IST infrastructure without substantially increasing the opex costs of doing so.
- Our ICT planning process is in line with good industry practice, as identified by the independent verifier.

As invited by the Commission, we provide further information in this submission on the impact of the proposed expenditure reduction on our ability to meet our stated objectives.

⁷ There is a 50% probability (P50) that the final cost will be equal to or less than the estimate (“over estimation”). There is also a 50% probability that the final cost will be greater than the estimate (“under estimation”). Over time, the over estimation (“overs”) and under estimation (“unders”) balance out.

Our RCP3 estimation for capex expenditure is appropriate

Our RCP3 project estimations for capex expenditure are P50 based, meaning that any estimation uncertainty in aggregate should cancel out across the portfolio of projects.

The draft decision states an expectation regarding the level of detail expected in initial business need definitions that does not represent GEIP for ICT capex.⁸ At the initial planning stage, it is prudent to invest only in high level or concept estimates because the underlying options analysis should be reassessed again later when the project is called forward for detailed planning. This is because technology choices expire in the intervening period. Basing our estimation on the most likely current solution (rather than canvassing options that may not be available or optimal in the future), results in a reasonable P50 estimation.

We have made portfolio reductions in line with expectations

We undertook an extended challenge process as we developed our RCP3 proposal that achieved a 14% reduction from the baseline (RCP2) capex expenditure. This reduction was at portfolio level and resulted in a submission with a reduction of \$23 million from our internal starting point. This reduction is in line with EMCA's expectation for an "estimate challenge to be at the upper end of the 10-20%".⁹ In addition, we undertook a project estimation level challenge to ensure a reasonable estimation of project cost, given what we know today, and based on recent experience of similar projects.

Consequence of reduced lifecycle capex investments

Our RCP3 proposal reflects a strategy of maintaining systems in a supported state, recognising that in some cases it may be more prudent to opt for opex solutions. The fungible nature of capex and opex supports this approach.

Reducing lifecycle capex investment increases opex required for:

- maintaining systems not in line with mainstream use,¹⁰ and
- managing the increased risk of failure and increased restoration times.

In general, we have found that the increase in opex required to maintain systems out of mainstream support is comparable to, or higher than, investing in capex solutions. When detailed business cases are developed and extending the life-cycle becomes a viable solution the fungible nature of capex and opex allows us to optimise costs.

Reducing the life-cycle capex allowance essentially removes the option to upgrade. Our RCP3 proposal includes the required capex to upgrade only and has no provision for the alternative of maintaining unsupported systems. Accordingly, a reduction in lifecycle capex requires a corresponding increase in opex.

At some point though, the risk associated with unsupported systems becomes unsustainable and a lifecycle capex investment must be made. Deferring life-cycle upgrades for a full five years - the RCP3 period - is highly unlikely to be acceptable to customers, nor would it be good for consumers, and would require making investments that are unfunded under the Commission's current proposal.

⁸ As validated in discussion with Gartner Research.

⁹ Ibid, para 84.

¹⁰ See our response to *RF154 – ICT Lifecycle-driven projects – risk assessment* (12 April 2019).

Impact of life-cycle capex reductions

Any reduction in life-cycle capex will require us to deprioritise investment across the portfolios. Taking a risk-based approach we would prioritise investment in lifecycle projects in the following order:

- critical systems (mainly in our Transmission Systems portfolio) that enable the real-time operation of the national grid,
- telecommunications, networking and key IT infrastructure that enable critical systems, asset management systems and corporate systems,
- asset management systems that enable us to continue evolving our asset management efficiencies and meet our regulatory requirements and expectations,¹¹ and
- business support systems (Corporate and other Shared services) that support essential enterprise functions.

Prioritisation within the above categories would be sub-prioritised based on risk and cost. In some cases, corporate systems may be prioritised ahead of asset management due to compliance and risk considerations.

Applying the prioritisation scheme outlined above, we have completed a preliminary high-level impact assessment of a range of reductions in lifecycle capex ranging from no reduction to the draft determination (reduction of 15%).¹²

	Scenario	ICT capex \$m	RCP3 capex impact (\$m)	RCP3 opex Impact ¹³ (\$m)	RCP3 Operational Risk Impact	Impact
A	RCP3 Proposal	94.8	-	-		No impact. Deliver to the outcomes set out in the RCP3 proposal.
B	2.6% reduction	92.3	(2.5)	2.75	Low	Opex impact but risk tolerable. Reductions in business support systems only (\$2.5m). Operating “end of support” hardware and software directly increases opex, but risk is tolerable.
C	7.6% reduction	87.6	(7.2)	7.92	Medium	Opex impact and increased risk. Increased risk from reductions in business support systems (\$4.6m), telecoms and network systems (\$1.9m) and in critical systems (\$0.7m). Operating more “end of support” hardware significantly increases opex.

¹¹ For example, the Commission proposes new obligations on us in the following areas: asset health development; asset risk and network risk which includes criticality developments; and Improvements in risk-based decision making. The Commission has acknowledged the importance of data and tools to enable significant improvement.

¹² Further information is available on the preliminary lifecycle analysis.

¹³ The increase in opex required to maintain systems out of mainstream support is comparable to or higher than investing in capex solutions. We have estimated the impact on opex as 110% of the proposed capex reduction.

D	Draft Decision	80.6	(14.2)	15.62	High	Opex impact and unacceptable risk. Potentially unacceptable risk from reductions in critical systems (\$0.9m), asset management systems (\$2.0m), telecoms and network systems (\$3.2m) and business support systems (\$4.6m) plus an addition reduction across all projects by a further \$3.5m. Operating “end of support” hardware and software directly increases opex, but risk is tolerable.
---	----------------	------	--------	-------	------	---

Table 1: Preliminary high-level impact assessment of range of ICT lifecycle capex reductions (\$m, constant 2017/18)

2.4 Benefits-driven ICT capex

2.4.1 Commission draft decision

The Commission’s draft decision is to reduce benefits-driven ICT capex by 50% (\$18.4 million).

2.4.2 Our response

The benefits-driven ICT capex should not be reduced. This is because:

- Benefits-driven ICT projects are fundamental to the delivery of grid efficiencies and our ability to take advantage of new technologies (such as gaining efficiencies from automation and insights from data mining).
- The reduced benefits-driven expenditure allowance is insufficient to allow us to deliver on key ICT investments to support grid expenditure. The draft decision reduces expenditure by 50% but implicitly assumes that we achieve 100% of the cost efficiencies enabled by this investment. Treatment of costs and benefits should be consistent.

As invited by the Commission, we provide further information relating to unquantified benefits. We include an assessment of how the capex reduction would affect our ability to meet expected business outcomes.

Why benefits driven projects are included in the submission

Benefits-driven ICT capex projects are a key component of our ICT strategy.¹⁴ The proposed investments are expected to earn a positive return over a five-year period. Accordingly, excluding our proposed benefits-driven ICT capex results in a net increase in expenditure over RCP3 and RCP4.

In our proposal we used an IRR hurdle rate of 8% (several percentage points above the expected WACC for RCP3) to recognise the scarcity of capital allocation in the investment decision. Because the useful life of ICT assets is generally 5 years, and projects are evenly spread over the period, not all benefits accrue during RCP3. Assessment of our plans should therefore consider the impact in both RCP3 and RCP4.

¹⁴ Transpower (November 2018). *Securing our energy future 2020-2025: RCP3 proposal*. See sections 2.2.4 and 7.2. This report can be accessed on the Transpower website at https://www.transpower.co.nz/sites/default/files/uncontrolled_docs/Securing%20our%20Energy%20Future%20RCP3%20Proposal.pdf.

Expected cost savings from benefits-driven ICT capex were incorporated in our RCP3 proposal

Consistent with our approach to efficiency, our proposal reflects both investment costs and the cost reductions enabled by these investments.¹⁵

The table below sets out the costs and associated opex and capex reductions reflected in our proposal.¹⁶

\$m	RCP3					RCP4		
	Proposed benefits driven ICT capex	Capex impact	Opex impact	Capex deferral	Total impact	Capex impact	Opex impact	Total impact
Capex deferral	11.18	-	-	(71.5)	(71.5)	-	-	-
Other benefits driven investments	25.5	(6.3)	(11.6)	-	(17.8)	(4.5)	(10.9)	(15.4)
Total	36.7	(6.3)	(11.6)	(71.5)	(89.3)	(4.5)	(10.9)	(15.4)

Table 2: Benefits-driven ICT capex and associated impacts (\$m, constant 2017/18)

Our proposed RCP3 investment in benefits driven projects of \$36.7 million will enable:

- \$6.3 million in capex savings during RCP3, and \$4.5 million during RCP4,
- \$11.6 million in opex savings during RCP3 and \$10.9 million during RCP4, and
- \$71.5 million in deferred capex during RCP3.

Our RCP3 proposal (and longer-term forecasts) incorporate these savings. The draft decision implicitly assumes that we achieve 100% of the cost reductions incorporated into our proposal but reduces by 50% the investment required to achieve these cost reductions. To avoid setting an unsustainable expenditure allowance, the final decision should treat capex and associated savings consistently and add back into our allowance all cost offsets.¹⁷

If these cuts are applied, there will be an increase in both opex and capex, because expected cost savings will be foregone.

The risk of not considering unquantified benefits

The draft decision does not consider the impact of the reduction of benefits on our ability to continually improve our asset management efficiency while taking advantage of emerging ICT technologies and trends. It is important that we continue to innovate and take advantage of new technology with the uncertain future outlined in *Te Mauri Hiko*.¹⁸ We need to be prepared as we head into RCP4 to meet the expected uptake in electricity demand as the economy electrifies. New technology will be critical to enable this.

¹⁵ Ibid, section 3.4.

¹⁶ Figures are summary of figures provided to Commission/EMCa in response to *RFI52 ICT- Benefits analysis* (10 April 2019).

¹⁷ The draft decision reduction of 50% (\$18.4m) would require 50% of costs savings reflected in the RCP3 proposal to be backed out. This would result in an increased capex allowance of \$3.2m (\$6.3m x 0.5) and an increased opex allowance of \$5.8m (\$11.6m x 0.5).

¹⁸ Ibid.

Impact of benefits-driven capex reductions

Any reduction in the benefits-driven capex will require us to further deprioritise investment across the portfolios. Taking an outcomes-based approach and acknowledging our obligations, we would prioritise investment in the following order:

- projects that enable capex deferral,
- projects that enable us to meet our asset management obligations, and
- projects that enable corporate efficiency.

Prioritisation within the above scheme would include a further sub-prioritisation based on the opportunity cost of not doing the project (as informed by qualitative assessment) and the financial benefit as expressed via the internal rate of return (IRR).

Using the above prioritisation scheme, we have completed a preliminary high-level impact assessment of a range of reductions in benefits-driven capex ranging from no reduction, to the draft determination's reduction of 50%. A summary of the range of reductions assessed is provided below.

Reduction Scenarios				Unquantified Impact	Quantified impact			
	% Reduction	Number of Projects	RCP3 ICT Capex Reduced		RCP3 Opex	RCP3 Capex	RCP4 Opex	RCP4 Capex
A	-	-	-	None. The RCP3 proposal.	-	-	-	-
B	5%	5	(1.7)	Unable to achieve the forecasted corporate efficiencies.	0.5	1.5	0.12	0.04
C	20%	14	(7.2)	Unable to achieve the forecasted corporate, project delivery and maintenance efficiencies.	1.9	1.6	3.8	0.6
D	50%	34	(18.0)	Unable to achieve the forecasted corporate, project delivery and maintenance efficiencies. Cannot continue evolving our asset management practice and meet our regulatory requirements and expectations.	6.3	5.4	8.1	2.9

Table 3: Preliminary high-level impact assessment of range of benefits-driven ICT capex reductions (\$m, constant 2017/18)

Other reasons referred to in the draft decision

The draft decision provided two additional reasons for its 50% adjustment to benefits-driven capex:

- The information provided regarding benefits was inconsistent, and.
- Projects appeared to be uneconomic.

As explained in our earlier response to the EMCa report, some of the information we provided on benefits provided was inconsistent.

As previously advised, the summary spreadsheet we provided in response to a Commission/EMCa information request included errors and did not align with the information used to calculate RCP3 proposal adjustments and the tables in the associated work paper.¹⁹ We regret this error.

We subsequently provided the correct information to the Commission alongside our submission on the EMCa report.²⁰

The Capability and Systems Change Initiative briefs, developed for each project, contain further detail on each project, including the nature of expected benefits. These were not requested as part of the independent verification or EMCa's review. These can be provided to the Commission for detailed review.

2.5 IST-related Business Support opex

2.5.1 Commission draft decision

The Commission's decision is to reduce Business support opex by \$5.9 million.

2.5.2 Our response

The IST-related Business Support opex should not be reduced.

This is because the Business Support opex reduction is based on incorrect assumptions about the allocation of work between teams within our IST division and the staff headcount number that should be considered for the comparative analysis performed by EMCa.

EMCa's methodology appears sound, assuming they have benchmark information and are using it for comparison (although this has not been referenced or shared). Our response to RFI040 and our response to the EMCa report²¹ clarified that out of the 151.4 FTE, 16 FTE support the System Operator service. We also clarified that for the remaining 135.4 FTEs, 39% of employee time is spent on and recovered through capital projects. A further 4% of their time is spent on and recovered through investigations projects that lead to capital projects, meaning 43% of employee time is invested in defining and delivering projects and not charged to the opex side of our business support budgets.

Any assessments should consider the actual level of FTE count, the corrected allocation of responsibilities between the groups and the reduced portion of costs included in business support opex. Using the actual information (staff numbers and allocation of work), our staff numbers actually fall well within the number EMCa viewed as reasonable i.e. 140.5.

Regarding I160, EMCa made incorrect assumptions about the functions performed by Enterprise Services in reaching its conclusion that headcount should be 11 less. We also note the Independent Verifier considered that our business support programme met the GEIP standard.

¹⁹ The work paper was reviewed by the independent verifier, as well as the Commission and EMCa.

²⁰ Ibid.

²¹ Ibid, comment against paragraph 200.

2.6 Cybersecurity

2.6.1 Commission draft decision

In relation to Transpower's cybersecurity programme, the Commission adopted EMCA's finding that the expenditure was reasonable but Transpower should consider aligning itself with international standards.

2.6.2 Our response

Cybersecurity related ICT capex will be indirectly impacted from reductions in other ICT areas, such as life-cycle capex.

Transpower already aligns itself with international standards in this area.

Adjustments to ICT capex

While the draft decision does not directly adjust cybersecurity related ICT capex, it does so indirectly through the proposed adjustment to the lifecycle component of the ICT capex allowance. Any adjustment to lifecycle capex allowance will also impact our cybersecurity investment.²²

Aligning with international cybersecurity standards

We were concerned to see EMCA's conclusion that "Transpower appears to fall short of international standards". This does not accurately characterise Transpower's approach to cybersecurity.

We do align ourselves with international standards in this area. We currently do so by supporting the Control Systems Security Information Exchange (CSSIE) group and National Cyber Security Centre (NCSC) in the continued enhancement of the Voluntary Cyber Security Standard for Industrial Control Systems (VCS-ICS). This standard is aligned with international standards where appropriate.

We assess ourselves on a regular basis and continuously work with New Zealand government agencies and other industry participants to adapt and refine our approach as required. Cybersecurity is a high profile risk area and is reported on at every Board meeting, with the Board risk committee considering operational risk and residual risk at each meeting.

²² Ibid, comment against paragraph 190.

3. Insurance opex

3.1 Commission decision

In its draft decision, the Commission reduced insurance opex by \$15.8m.

3.2 Our response

The insurance opex should not be reduced.

A reduction of \$15.8 million will significantly impact management of our insurance risk profile and result in either:

- a higher cost of insurance if we determine external insurance is better than under compensated self-insurance, or
- a material reduction in risk coverage.

The use of a captive insurance company, Risk Reinsurance Limited (RRL), has provided an effective and efficient mechanism for Transpower to self-insure certain insurance risks where market price is inelastic and relatively expensive. This is particularly relevant for insurance of unique and complex assets such as submarine cables. Our understanding of these unique assets allows us to make a risk trade-off and achieve a more cost-effective outcome. This approach, which has been in place for a number of years, has allowed us to keep our insurance costs below the market premium trend at a time when the New Zealand market has seen large premium increases.

The insurance market in New Zealand and globally is fluid as insurers factor more environmental and climate changes risks into their actuarial models. Locally, property insurance in the Wellington region, where many of our critical assets are, is expensive and challenging to obtain as insurers scale back their exposure to the region's risk, due to earthquake and other environmental risks. We use RRL to self-insure risks where we can achieve a better underwriting result. External premiums are kept more competitive by using self-insurance through RRL, which we use to displace less competitive external insurance. RRL also provides access to global markets, providing diversity and competition at a time when the New Zealand insurance market premiums have been under pressure in the wake of the Canterbury and Kaikoura earthquakes.

An insufficient self-insurance allowance creates an incentive to:

- not insure risks and rely on Subpart 7 of Transpower's Input Methodologies Determination to re-open the price-quality path in response to a catastrophic event. This effectively means consumers insure catastrophic events, or
- externally insure previously self-insured risks, improving certainty of recovery of premium costs and losses net of insurance. This would result in significantly higher external premiums, with a greater opex requirement, estimated to be \$2-3 million per annum above Transpower's proposal.²³

Our position is supported by the actuary and broker commentaries in appendix D.

The Commission has adopted expected loss ratio rather than rely on expert actuarial and broker market-estimated premiums. This approach does not incorporate all costs of self-insurance (including expected losses, administration costs, cost of capital and uncertainty in claims

²³ This estimate is based upon recent market testing of our transmission line and submarine cables insurance cover and the high level of retention on the Material Damage policies.

experience). In effect, the expected loss amount calculated by the Commission does not cover risks of self-insurance across the different self-insured policies of Transpower.

The proposed RCP3 insurance opex²⁴ appropriately represents our expected requirement for the period. It is based on expert assessments undertaken for self-insurance premiums over separate insured risks to determine the value of premiums on each of the separate self-insured risks. Premium rates are applied to different types of self-insured risks and reflect the different underlying risks on individual self-insured policies.

Our understanding of the Commission's approach is summarised in appendix C. The Commission's approach gives no consideration to the different value of insured assets within the insurance policy cover and associated risks.

Appendix C highlights that removing the Submarine cables IEB, CGA and cyber self-insured policies and applying the property-only expected loss ratio across the Material Damage and Submarine Cables policy achieves approximately the same value, albeit slightly higher, than Transpower's original proposal.

We remain of the view that our submission, based on specific self-insured policy risks and calculated by expert actuarial and broker assessments, is appropriate.

²⁴ Adjusted to reflect that the FENZ levy is to be treated as a recoverable cost.

4. Enhancement and Development base capex

4.1 Commission draft decision

The Commission's proposal is to approve Transpower's low-expenditure scenario in light of the uncertainty regarding Transpower's capex programme. The Commission is proposing to reduce uncertainty using a base capex adjustment mechanism (BCAM).

4.2 Our response

We support the Commission's view that the Base Capex Adjustment Mechanism (BCAM) should be amended with the aim of achieving a workable mechanism (including that it should function with low administrative process and compliance costs).

We support the development of a workable process to ensure dynamically efficient investment during the RCP3 period.

The BCAM is intended to balance risks to both consumers and Transpower arising from uncertainty within the E&D base capex programme. That uncertainty is not within Transpower's ability to control, which means the 'right' allowance for E&D base capex is difficult to determine.

In principle, if the BCAM can be amended in a way that is simple to implement without undue administrative burden then the Commission's draft decision to approve our low-expenditure scenario amount is appropriate.

But if the BCAM is not simple to implement, we will be required to prioritise E&D base capex for anything other than the 'Extremely Likely' category of projects against other spend across the wider fungible funding pool. Alternatively, we could choose to push investment into RCP4 or not make the investment at all. We do not think this results in the best outcome for consumers.

The Commission has signalled a separate consultation beginning on 18 July 2019 to "explore the workability of the BCAM through an amendment to the Capex IM".²⁵ We intend to participate in that consultation process.

²⁵ An indicative timeline for this separate consultation can be found on the Commerce Commission's website, at <https://comcom.govt.nz/regulated-industries/input-methodologies/projects/amendments-necessary-to-implement-transpowers-2020-individual-price-quality-path-and-future-price-quality-paths#projecttab>.

5. Maintenance opex

5.1 Commission draft decision

The Commission's draft decision applies a forecasting adjustment to predictive maintenance opex, reducing the allowance by \$6 million.

5.2 Our response

The predictive maintenance opex forecasting adjustment should not be applied.

Our proposal had already addressed over-forecasting of maintenance opex by taking a two-step approach that changed the way we forecast for some asset types then applying a top-down deliverability adjustment. Our view is a further \$6 million adjustment would compound the level of cost/risk trade-off we will be required to make.

We applied a top-down deliverability adjustment of \$28 million, aimed at balancing the risk of over-funding due to under-delivery, and under-delivery.²⁶ In our proposal document (section 2.3.4) we identified five broad delivery risks that led to the deliverability adjustment, the second of which specifically applies to over-forecasting:

Some portfolios have low forecast certainty in later years of RCP3 due to the nature of their risk or condition-based replacement strategies. While this supports efficient investment and provides flexibility to refine our plans closer to the need date, it makes it more difficult to forecast where and when resources will be required.

We adjusted our forecasts for some asset types specifically due to the over-forecasting now apparent in our RCP2 proposal. For dampers and spacers, we analysed the first two years of RCP2 and identified that actual deliverables were lower than anticipated in the submission. We therefore adjusted our forecasting approach to compare actual need over RCP2 with the years between 2010 and the start of RCP2. Our RCP3 proposal numbers were adjusted accordingly.

Given these adjustments, a further reduction in maintenance opex is not warranted.

²⁶ Transpower (28 February 2019). *Transpower's individual price-quality path for the next regulatory control period: issues paper*. This submission can be found on the Commerce Commission's website at https://comcom.govt.nz/_data/assets/pdf_file/0023/127247/Transpower-Submission-on-Transpowers-IPP-reset-issues-paper-28-February-2019.pdf. Refer to chapter 10.

6. Stakeholder engagement and reporting requirements

6.1 Introduction

The Commission's draft decisions have clearly set expectations for greater levels of transparency, engagement and reporting from Transpower.

We have closely considered the many new reporting requirements in the Commission's draft decisions individually and in aggregate.²⁷ Some of the new requirements are incremental; several others will require more effort to complete. In aggregate, they are a material step up in the volume of reporting requirements.

Our interest is ensuring all reporting required under our IPP is workable and adds value that supports the long-term interests of consumers. It will be important that we, our customers, consumers and other stakeholders understand how the Commission intends to use this information in a way that is consistent with the purpose of Part 4 and supports regulation of Transpower into the future.

In this section we comment on the following matters in the draft decision:

- we seek flexible reporting timelines where reasonably justifiable,
- we have concerns with the proposed reporting for Grid Output measures GP-M, AP5, and CS1,
- progress reporting in developing asset health modelling should be against the roadmap, and
- we do not understand a requirement to report against an asset health pilot scheme.

6.2 Reporting timelines

6.2.1 Commission draft decision

The Commission's decision proposes:

- a large number of new annual reports, to be submitted within 80 working days from year end and with the Annual Compliance Statement, and
- to allow us 42 working days to report comprehensively on interruptions that are both longer than 12 hours and cause loss of supply greater than one system minute.

6.2.2 Our response

In principle, we support the Commission's approach to reporting and its desire to increase visibility of our activities to stakeholders. But we think there are clarity and practicability adjustments that should be made to the proposed reporting requirements.

The 80-working day timeframe will be difficult to achieve given the aggregate impact of preparing many new reporting requirements in parallel with, and in addition to, our existing reporting requirements. Our compliance reporting is subject to internal peer review, external audit and internal audit and governance processes. Importantly, all of our regulatory reporting requires Board approval ahead of submission to the Commission and, in relation to instances of compliance reporting (which are increased in number in the draft decision), director certification.

While we will invest in more effective processes and tools to make reporting more efficient over time, the timelines proposed for this additional reporting will be extremely challenging. We think a

²⁷ Table 3.2 of the draft decision provides an overview of the new reporting requirements.

standard 120 days would be more reliably achievable, together with a general provision under which Transpower can apply for more time if reasonably justified.

Similarly, the requirement to report within 42 working days from each qualifying interruption will be extremely challenging, especially where the reporting date is close to an annual reporting date. We suggest a general provision under which Transpower can apply for more time if reasonably justified.

6.3 Reporting on grid output measures GP-M, AP5, and CS1

6.3.1 Commission draft decision

The Commission proposes new requirements for reporting annually:

- our performance against new service performance measure GP-M on interruptions less than one minute,
- information on the extent to which Transpower places customers on N security, related to new shadow quality measure AP5, and
- the results of our post-interruption event survey results for new trial measure CS1.

6.3.2 Our response

GP-M reporting:

This should not be a quality standard. Reporting should be annually on trends, insights and notable events.

This is because, as we discussed in section 1.4.2 (above), applying a quality standard to momentary interruptions (interruptions less than one minute) will not provide valuable information. This is more likely to be available from annual reporting on trends, insights and notable events.

AP5 reporting

This should not be a reporting measure.

Refer to section 7.4 (below) where we outline our rationale for not supporting this measure. Reporting on this measure would not provide customers, consumers and the Commission with valuable insights.

CS1 reporting

Our reporting should be annual and anonymised.

We conduct post-interruption event surveys twice a year and find them valuable. The results are not currently disclosed. There is a risk that public disclosure may limit the extent to which our customers are willing to offer full transparency in their responses. In our view, anonymising the annual disclosure report for public release will not limit its usefulness. We recommend the Commission seek our customers' views on whether they would support a disclosure redacted for confidentiality reasons.

6.4 Reporting progress in developing asset health modelling

6.4.1 Commission draft decision

The draft decision is to require Transpower to report annually on progress towards implementing asset health models, risk-based decision-making frameworks and asset life extension model (Table 3.2, at page 75).

6.4.2 Our response

Reporting on our developing asset health modelling should be against the roadmap for the development of asset and network risk modelling that the draft decision requires us to develop by 1 October 2020.

We are concerned that the draft decision in Table 3.2 is too specific in targeting the scope of annual reporting against progress on particular tools and should be against the scope of our finalised roadmap.

6.5 Reporting for an asset health pilot scheme

6.5.1 Commission draft decision

The draft decision is to require annual “disclosure of how Transpower would have performed in relation to the proposed revenue-linked asset health pilot scheme, had the scheme existed.”

6.5.2 Our response

We do not understand the link between the draft decision and the reason given in Table 3.2. We assume the reference to the “pilot scheme” refers to an RCP2 reporting feature. We do not understand what value can be derived from such reporting. To the extent that the reporting linkage is not in error and the Commission does propose that we report against the RCP2 pilot scheme, then Transpower wishes to receive more information on the rationale that supports this view in order that we report accurately and in a manner that supports the long-term interests of consumers.

Our response is that there should be no requirement to report against the RCP2 pilot scheme during RCP3.

7. Grid output measures

7.1 Introduction

In this section we comment on:

- Normalisation of GP1, GP2, AP1 and AP2 for force majeure events.
- The following matters in the draft decision relating to AP1, which measures the energy availability (%) of the inter-island high-voltage direct current (HVDC) system:
 - Forced outage allowance in the HVDC Availability target.
 - Approach for scheduled outages in the HVDC Availability target.
- The inclusion of an N-Security reporting service performance measure (AP5).

7.2 Normalisation for force majeure events

7.2.1 Commission draft decision

The draft decision is to apply normalisation for the grid performance measures (GP1 and GP2) and asset performance measures (AP1 and AP2) for events that are wholly beyond the reasonable control of Transpower.

7.2.2 Our response

We support the draft decision by the Commission to normalise the effect of force majeure events from grid output measures GP1, GP2, AP1 and AP2. However, the draft IPP determination published on June 14 2019 contains no drafting for the policy. We assume this is an oversight that will be remedied in the final draft.

7.2.3 Normalisation for Transmission Alternatives

The normalisation mechanism needs to accommodate exclusions for points of service where Transmission Alternatives may operate in the future. Several submitters to our consultation on making Transmission Alternatives more visible in our investigation processes expressed the view that Transmission Alternatives may have different reliability characteristics than the grid.²⁸ As our quality measures are derived from transmission asset performance, the measure may inadvertently disincentivise Transmission Alternatives if we have dollars at risk from their unplanned interruptions.

7.3 AP1: forced outage allowance

7.3.1 Commission draft decision

The draft decision is to adjust Transpower's proposed target, cap and collar for the AP1 measure.

7.3.2 Our response

The annual forced outage allowance should not be reduced from 0.5% to 0.25%.

²⁸ Information about to our consultation on Transmission Alternatives can be found on the Transpower website at <https://www.transpower.co.nz/keeping-you-connected/industry/transmission-alternatives>. This includes relevant submissions from the Major Electricity Users' Group (MEUG), Orion, Unison and the Independent Electricity Generators Association (IEGA).

From an international perspective, an analysis of over 34 HVDC links reporting to Cigre between 2011 and 2016 revealed an average forced outage rate of 1.26% per year. As we noted in our RCP3 Proposal, a 98.5% availability target has been challenging to achieve in a normal year. We consider a 0.5% forced outage allowance is still appropriate. For example, the average annual Pole 2 availability between 1992 and 2016 was 95.55%.

7.4 AP1: approach for scheduled outages

7.4.1 Commission draft decision

The draft decision is to apply a proposed target to all five years of RCP3, with the impacts of Pole 2 replacement in a given year netted out to a maximum of 0.7% unavailability in a given year.

7.4.2 Our response

For AP1, the HVDC availability target should be:

- 98.5% for two of the RCP3 years when the planned Pole 2 life-extension programme of work is not expected to affect the target; and
- 97.8% for the three years of RCP3 when most of the planned Pole 2 life-extension programme of work will be carried out. The trigger for applying the 97.8% target would be when the longer-duration outages on the Pole 2 programme of work are required to carry out the converter transformer refurbishment aspect of the project.

We are optimising the delivery of Pole 2 programme of work and will utilise the planned outages in the lower target years (97.8%) to deliver bulk of the work. We will consult our customers in advance of finalising the planned outages over 3 years in RCP3.

We will elect which three years in RCP3 the 97.8% availability target ('the lower HVDC target') shall apply, by notifying the Commission by 31 December in a relevant RCP3 year that:

- planned Pole 2 life-extension programme of work will be carried out in the specified year, and
- the 0.7% allowance for the planned Pole 2 life-extension programme shall apply for that year.

7.5 AP5: N-Security reporting

7.5.1 Commission draft decision

The draft decision is to retain the trial RCP2 availability measure PMD5, which measures the extent to which Transpower places customers on N security, as a reporting requirement for RCP3 (named AP5).

7.5.2 Our response

We do not support the Commission's draft decision to adopt trial RCP2 measure (PMD5) as AP5 in RCP3.

In the Commission's view this measure could be a leading indicator of deterioration of the grid. We disagree. In most instances when we place assets on N-security we do so to undertake work to maintain or upgrade grid assets without taking outages which would impact our customers directly. We consider the Commission's proper scrutiny of our development of asset risk tools and measures is better focussed on ensuring we invest to avoid deterioration of the grid, consistent with GEIP.

Further, reporting on unplanned outages coinciding with customers being on N-security is already required via reporting on the grid reliability measures (GP1 and GP2).

The Commission appears to consider placing customers on N security can have a significant impact if they are not given adequate warning to prepare. We understand the Commission's concern. However, the Commission should consider that regulation by the Electricity Authority already ensures our customers know ex-ante when they will be, and are, on N-security (due to planned outages), including via the Planned Outage Co-ordination Process (POCP), consultation on our annual Outage Plan and notification ex-ante of any variation to those plans as specified in our Outage Protocol.

For a period early in RCP2 we trialled reporting on PMD5. Our experience was the analysis required to report robustly on AP5 ex-post (as now proposed by the Commission) required a significant proportion (50%) of a highly specialist senior employee. We would expect a similar resource requirement if this reporting requirement remains.

In April 2017, we consulted our customers on our proposal to discontinue PMD5 for RCP3. We received no objections from submitters. This level of resourcing does not provide value to customers and consumers.

8. Detailed summary of submission points

Commission draft decision	Summary of our response
<p>Section 1: Quality standards</p> <p>Section 1.2: Asset Health The draft decision proposes specifying minimum asset health quality standards set between the proposed trial asset health measures' collar values, and what this would be without intervention, in each asset class for each year of RCP3.</p> <p>Section 1.3: GP1 and GP2 (Number and average duration of unplanned interruptions) For the grid performance measures applying to RCP3, the draft decision is:</p> <ul style="list-style-type: none"> • to use Transpower's proposed targets, caps, collars for GP1 and GP2, • for quality standards, set compliance criteria using a pooling approach, and • to set reporting requirements whenever a POS is outside the collar value. <p>Section 1.4: GP-M (Momentary interruptions – interruptions less than one minute) The draft decision is to introduce the GP-M measure with an associated quality standard and a reporting requirement for GP-M.</p>	<p>We propose that asset health measures are implemented as reporting requirements only.</p> <p>We propose amending the pooling rule to 3 out of 6 measures not met for 2 out of 3 years (instead of the draft decision's 2 out of 6 pooling rule). This would produce a result that is consistent with the stated objectives of the draft decision.</p> <p>We do not support a quality standard for momentary interruptions. We propose reporting should be on trends, insights and notable events. We consider this more useful than granular per-event reporting.</p>
<p>Section 2: ICT capex and opex</p>	
<p>Section 2.3: ICT lifecycle capex The draft decision is to reduce ICT lifecycle capex by \$14.2m.</p> <p>Section 2.4: Benefits-driven ICT capex The draft decision is to reduce ICT benefits-driven capex by 50%, being \$18.4m.</p> <p>Section 2.5: IST-related Business Support opex The draft decision is to reduce Business Support opex by \$5.9m.</p>	<p>The ICT lifecycle capex should not be reduced. The reduced expenditure allowance is insufficient to allow us to deliver key, business-enabling IST infrastructure without substantially increasing the opex costs of doing so. The benefits-driven ICT capex should not be reduced. The reduced allowance is insufficient to allow us to deliver key ICT investments to support grid expenditure. The draft decision reduces expenditure by 50% but accepts 100% of cost efficiencies enabled by this investment. Treatment of costs and benefits should be consistent.</p> <p>The IST-related Business Support opex should not be reduced. We recommend the Commission accept our full Business Support opex proposal. The reduction appears based on incorrect assumptions about the allocation of work between teams within our IST division and staff headcount number.</p>

Commission draft decision	Summary of our response
<p>Section 2.6: Cybersecurity</p> <p>The Commission stated EMCa’s review of Transpower’s cybersecurity programme didn’t consider the expenditure was unreasonable but recommended Transpower consider aligning itself with international cybersecurity standards.</p>	<p>Transpower aligns itself with international cybersecurity standards.</p>
Section 3: Insurance opex	
<p>In its draft decision, the Commission reduced insurance opex by \$15.8m.</p>	<p>The proposed reduction will not compensate us to manage risks appropriately.</p> <p>The expected loss amount used by the Commission to calculate this reduction does not cover all relevant costs and risks of self-insurance across the different self-insured policies of Transpower.</p>
Section 4: Enhancement and Development base capex	
<p>The Commission considered the uncertainty surrounding Transpower’s capex programme and made a draft decision to approve Transpower’s low-expenditure scenario amount. It decided to reduce uncertainty using a base capex adjustment mechanism (BCAM).</p>	<p>We agree with the Commission’s view that the Base Capex Adjustment Mechanism (BCAM) should be amended and with its intent to achieve a workable mechanism (including that it should function with low administrative process and compliance costs). We support there being a workable process to ensure dynamically efficient investment during the RCP3 period.</p> <p>The Commission has signalled a separate consultation beginning on 18 July to “explore the workability of the BCAM through an amendment to the Capex IM”. We will participate in that submission process. Our position is therefore reliant upon a workable outcome emerging from the BCAM consultation.</p>
Section 5: Maintenance opex	
<p>The Commission’s draft decision applied a forecasting adjustment to the predictive maintenance opex allowance of \$6m.</p>	<p>Transpower has addressed over-forecasting of predictive maintenance opex when it developed its proposal. A further \$6m adjustment would compound the level of cost /risk trade-off Transpower will be required to make.</p>
Section 6: Stakeholder engagement and reporting requirements	
<p>Section 6.2: Reporting timelines</p> <p>The Commission’s draft decision is:</p> <ul style="list-style-type: none"> • for many new reports be submitted annually, within 80 working days from year end and with the Annual Compliance Statement, and • to allow us 42 working days to report comprehensively on interruptions that are both longer than 12 hours and cause loss of supply greater than one system minute. 	<p>The standard reporting time for new annual reporting should be 120 days from year end, rather than 80 days, with a means by which Transpower can apply for more time to meet a reporting requirement if reasonably justified.</p> <p>Regarding the requirement to report within 42 working days from each qualifying interruption, we suggest a general provision under which Transpower can apply for more time if reasonably justified.</p> <p>A variety of technical changes will be suggested in our response to the draft IPP for some of the new reports, to enhance clarity and assure value.</p>

Commission draft decision	Summary of our response
<p>Section 6.3: Reporting on grid output measure CS1</p> <p>The draft decision proposed requiring us to disclose our post-interruption event survey results for new trial measure CS1.</p> <p>Section 6.4: Reporting progress in developing asset health modelling</p> <p>The draft decision summarised in Table 3.2 is to require Transpower to report annually on progress towards implementing asset health models, risk-based decision-making frameworks and asset life extension model.</p> <p>Section 6.5: Reporting for an asset health pilot scheme</p> <p>The draft decision requires annual “disclosure of how Transpower would have performed in relation to the proposed revenue-linked asset health pilot scheme, had the scheme existed.”</p>	<p>We propose this reporting should be annual, and anonymised.</p> <p>We are concerned that the draft decision in Table 3.2 is too specific in targeting the scope of annual reporting against progress on particular tools. In our view annual progress reporting should be against the roadmap for the development of asset and network risk modelling that the draft decision requires us to develop by 1 October 2020.</p> <p>We assume the reference to the “pilot scheme” refers to an RCP2 reporting feature. There should be no requirement to report against the RCP2 pilot scheme.</p>
<p>Section 7: Grid output measures</p>	
<p>Section 7.2: Normalisation for force majeure events</p> <p>The draft decision is to normalise out the effect of certain events from the quality measures.</p> <p>Section 7.3: AP1: forced outage allowance</p> <p>The draft decision is to adjust Transpower’s proposed target, cap and collar for the AP1 measure.</p> <p>Section 7.4: AP1: approach for scheduled outages</p> <p>The draft decision is to apply a proposed target to all five years of RCP3, with the impacts of Pole 2 replacement in a given year netted out to a maximum of 0.7% unavailability in a given year.</p> <p>Section 7.5: AP5: N-Security reporting</p> <p>The draft decision is to retain the RCP2 availability measure PMD5, which measures the extent to which Transpower places customers on N security, as a reporting requirement for RCP3 (named AP5).</p>	<p>We support the decision to normalise out the effect of certain events from the quality measures. We note the proposal is not included in the draft IPP.</p> <p>The incentive measures should accommodate exclusions for points of service where Transmission Alternatives may operate in the future.</p> <p>The annual forced outage allowance should not be reduced from 0.5% to 0.25%.</p> <p>For AP1 the HVDC availability target should be:</p> <ul style="list-style-type: none"> • 98.5% for two of the RCP3 years when the planned Pole 2 life-extension programme of work is not expected to affect the target, and • 97.8% for three of the RCP3 years when the planned Pole 2 life-extension programme of work will be carried out. <p>Transpower will elect in which three years the lower 97.8% target will apply.</p> <p>This reporting should not be adopted in RCP3.</p> <p>Using unplanned reductions of security is a poor indicator of deterioration of the grid, and we do not see how reporting on this measure would provide customers, consumers and the Commission with valuable insights. Regulation by the Electricity Authority already ensures our customers know ex-ante when they will be, and are, on N-security due to planned outages. It is resource intensive to provide this reporting for little perceived value.</p>

Appendix A. Reporting performance against asset health measures

In this appendix we set out our proposed approach to annual reporting against asset health measures. Our approach is to explain actively and clearly the reasons for any changes in asset health measures. We are confident our proposed approach is straightforward and will provide valuable insights on our performance against asset health standards.

Our preferred approach builds on the work we are currently doing in RCP2, where, every year under paragraph 28.1 of the IPP, we disclose the reasons for deviations in our asset health measures from initial forecast.

Transparency by explaining performance against the asset health measures

As part of annual compliance disclosures, we propose to provide clear reasons for all deviations in asset health measures from the target. We will provide a narrative for the deviations, and group these into two categories: justified and non-justified reasons. This information would be part of our annual IPP reporting and would be audited and Director-certified.

The following chart illustrates actual health (green and red dots). In years 4 and 5, actual asset health measures are worse than the target.

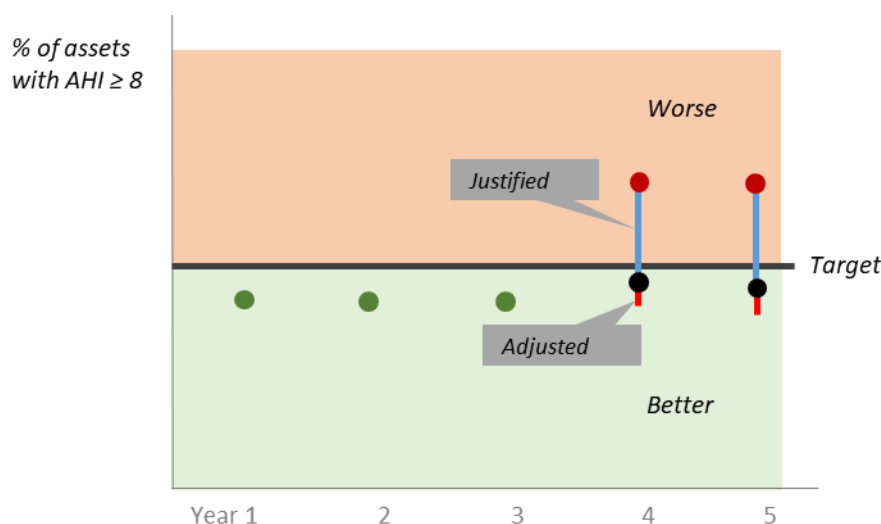


Figure 1: Asset health actual performance against target

Using insulators as an example, assume that in 2022/23 new asset condition information is collected that has shifted an additional 4% of all insulator sets into the AH \geq 8 category.²⁹ The actual insulator asset health has not changed and the change in the asset health index is not the result of poor asset management. Such a change would be classified as 'justified'.

In respect of the chart above, we propose to demonstrate our performance against the target using the 'adjusted' result (i.e. the black dots). Put differently, 'doing the right thing' should not count negatively in the annual assessment.

Another example is where we innovate and refine our asset strategies to ensure the least whole of life cost (optimisation of our approach to tower corrosion is one such case). If this results in a change in asset health and a documented change to our asset strategies, then this should also be classified as 'justified'. We need to be able to innovate to ensure our asset strategies are appropriate and least

²⁹ For example, the information could be the result of research conducted by overseas transmission companies.

cost to consumers and to address some of the investment challenges facing our aging conductor portfolio in RCP4 and 5.

We do not consider this reporting implies complexity. We have started this process during RCP2, via the IPP asset health pilot reporting, explaining deviations from our previous asset health forecasts. Our proposal is that in RCP3 we advance that reporting by categorising deviations as either justified or adjusted, to illustrate our performance against our asset health targets.

Appendix B. Pooling approach for GP1 and GP2 quality standards

This appendix discusses the Commission’s expectations in its draft decision for the rate of false positives that will arise as a result of the pooling approach for GP1 and GP2 quality standards.

It also provides the analysis that supports our proposal to amend the pooling rule to 3 out of 6 measures not met for 2 out of 3 years (instead of the draft decision’s 2 out of 6), as this would result in a false positive rate consistent with the draft decision’s stated objectives.

Guidance on the Target Rate of False Positives

The draft decision provides qualitative and quantitative guidance as to the expected rate of false positives, as shown in the table below. We note there is some inconsistency across the guidance, although the extracts provide an overall picture of the Commission preferring a very low likelihood of false positives.

Item	Comment
(F14) Our proposed quality standards are designed to provide a minimum level of quality for the performance of elements in Transpower’s proposed measures. (F16) For any revenue-linked output measure, the associated quality standard may be set at the level of the target, collar/cap, or at any other level where we consider an appropriate incentive would be provided by enforcement action under the Act.	Guidance on the objective of quality standards, expressed in absolute (rather than statistical or risk-based) terms.
(F72) In setting the quality standards, we have considered what minimum level of quality customers and consumers demand, while ensuring that the standard will not be breached so frequently that it results in unnecessary investigation that potentially undermines the effect of the standard.	Provides some qualitative guide as to the target likelihood of false positives – implies false positives are acceptable up to the point they begin to undermine the standard.
(F77) ...the standard might be akin to a ‘safety net’, to ensure that a metric (or pool of metrics) does not drop below some minimum performance level. In that case, we would need to rely on our enforcement discretion much less, as a breach of the standard is highly likely to reflect poor or unacceptable performance.	Qualitative guidance that implies an extremely low likelihood of false positives. Because the likelihood of a deterioration in underlying performance is unknown (though very low from Transpower’s perspective) this framing of the target appears unhelpful.
(F78) The setting of our proposed measures, which have been based on historical information, are only expected to be breached if Transpower allows quality to significantly deteriorate. Therefore, any contravention would warrant investigation into the cause, harm to customers, and potential liability.	Qualitative guidance that again implies an extremely low (near zero) likelihood of false positives.
(F107) We have selected the 2/6 measure as a judgement call on what may indicate deterioration below acceptable levels of quality over time, based on historical performance against the collar for different POS. Transpower noted in its submission on our issues paper that statistically the collar is expected to not be met for at least one GP1 or GP2 measure during RCP3.	Implies uncertainty as to the likelihood of false positives, and tolerance for a reasonable rate. NOTE: our submission on the issues paper flagged an expectation of not meeting the collar for at least one GP1 or GP2 measure <u>each year</u> during RCP3.

Item	Comment
(F110) Figure F3 shows the results of Transpower’s historical performance against the proposed measures going back to 2006. ...This would have resulted in one contravention for GP1, and two contraventions for GP2 since 2006.	Seems to imply comfort with a pooling approach that does not deliver an extremely low likelihood of false positives.
(F177) We also propose to use a ‘deadland’ zone to set the quality standard for the AP2 measure. To estimate this value, we have proposed adding a further standard deviation to the collar value to provide additional contingency.	Sets quality standard at two standard deviations from the target, implying a 2.5% probability of false positives each year. This equates to a 12% probability of a false positive breach of AP2 during RCP3.
(F221) As this is the first time setting a quality standard for momentary interruptions, we have set our proposed quality standard at two standard deviations from the historical average as a safety net (to capture extreme outcomes). Based on data from 2010/11 to 2017/18, Transpower would not have [breached] the quality standard historically.	Quality standard set at level that anticipates 12% probability of false positive breach of GP-M during RCP3.

Table 4: Guidance in the draft decision on the target rate of false positives

All the items above indicate the Commission is seeking a lower likelihood for false positives than is targeted for distributors on default price-quality paths:

- For DPP2, the Commission set quality standards at one standard deviation from the mean and adopted a two-in-three-year pooling approach. This corresponds to a 23% probability of false positives.³⁰
- For DPP3, the Commission’s draft decision sets quality standards at one and a half standard deviations from the mean with no pooling. This corresponds to a 30% probability of false positives.

The Proposed Pooling Provides a Much Higher Rate of False Positives than Implied Target

We have assessed the probability of false positives relating to the proposed pooling approach to allow comparison with the target rate. We have prepared two estimates:

1. Based on historic performance, we estimate a 38% probability of false positive breach for each measure during RCP3
2. Based on an expectation of exceeding one collar each year (i.e., this assumes underlying performance is now better than it was for much of the historic period) we estimate a 20% probability of false positive breach for each measure during RCP3.³¹

Even the best case scenario of these two estimates has a likelihood of a false positive across the four revenue-linked measures (GP1, GP2, AP1 and AP2) of about 50% – i.e., even if there is no deterioration in underlying performance a breach of the quality standards is as likely as not.

³⁰ For each of two quality standards, and assuming independence across years.

³¹ These estimates use a generalised binomial distribution to account for correlation between events, with the parameter ϕ set to 10% based on best data fit. If a standardised binomial distribution is used (which assumes independent statistics) then the probability reduces from 20% to 19%.

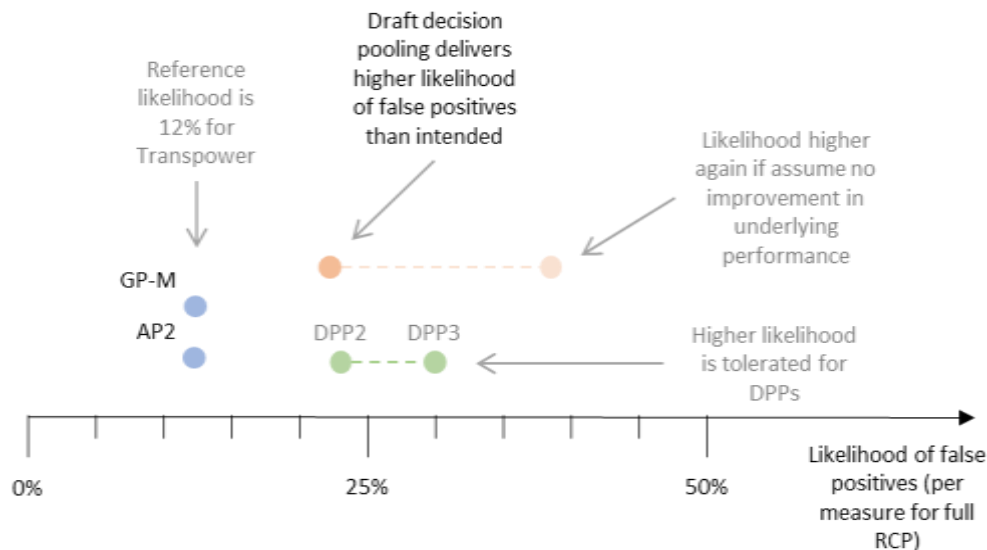


Figure 2: Likelihood of false positives (per measure for full RCP)

Summary

The draft decision leaves two problems unresolved:

1. Inconsistent description of the target effectiveness of the quality standard at filtering false positives.
2. Settings that provide a much higher likelihood of false positives than appears to be intended.

To address the first, we recommend the Commission clearly acknowledge that false positives are likely. This is reasonable, because eliminating the risk of false positives would make the regime too insensitive to actual deteriorations in underlying performance.

To address the second, we recommend the pooling is adjusted from two-out-of-six collars to three-out-of-six collars. This reduces the likelihood of false positives to a level much closer to the standard applied for GP-M and AP2, leaving a 25% likelihood of false positive across all the measures for the RCP.³²

Parameter	Draft Decision	Transpower Recommendation
Number of collars	2 from 6	3 from 6
Number of years	2 from 3	2 from 3
Likelihood across RCP – per measure	20% to 38%	2% to 6%
Likelihood across RCP – across GP1, GP2, AP1 and AP2	50% to 70%	25% to 30%

Table 5: Likelihood of false positives under draft decision and Transpower recommendation

³² This is our lower estimate (assuming underlying performance has improved) and assumes the probability of AP1 breach is consistent with the AP2 probability.

Appendix C. Insurance opex: supporting analysis

Our understanding of the Commission's approach to calculating the adjustment to insurance opex is summarised in the table below:³³

Policy (figures in \$ millions unless otherwise specified)	Cover	Retained	Expected Loss	Implied ratio ((c)/(b))	Commission estimated expected losses ((b)x(d))	Aggregate expected losses ((c) + (e))	Actuary & Market Premiums	Actuary & Market Premium ratio	
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	
MDBI below deductible	2.00	2.00	1.19	59.5%		1.19	1.54	77.0%	
Cables IEB	10.00	10.00	0.06	0.6%		0.06	0.15	1.5%	
T&D	10.00	10.00	1.50	15.0%		1.50	2.52	25.2%	
CGA	2.00	2.00	0.22	11.0%		0.22	0.22	11.0%	
Cyber	1.00	1.00	0.04	4.0%		0.04	0.05	5.0%	
Totals	25.00	25.00	3.01	12.0%		3.01	4.48		
MDBI	750.00	10.00		12.0%	1.20	1.20	2.47	24.7%	
Cables	90.00	23.75		12.0%	2.86	2.86	3.24	13.6%	
	865.00	58.75	3.01	12.0%	4.06	7.07	10.19		
Transpower's submission - Commerce Commissions implied premium (\$7.07 - \$10.19)							(3.12)		
Multiplied by the 5-year RCP (\$3.12 x 5-years)								(15.58)	

Table 6: Our understanding of Commission's calculation of adjustment to insurance opex

The risks and cover over the five actuarially estimated self-insurance policies are disparate and not representative of all Transpower's self-insured property risks. The Commission applies the ratio across all self-insured policies, including the Material Damage and Submarine Cables self-insured risks to determine the \$15.8 million adjustment.

Adding the additional major self-insured policies and using the Commerce Commissions ratio of 12.0% produces the rough expected losses estimate of \$7.07m (column (f)). The \$15.6m over RCP3 is the difference to Transpower's proposal.

Specifically, examining the expected loss to retained risk ratios on individual policies:

- The Submarine Cables Internal Electrical Breakdown (IEB) programme insured cover limit is relatively high and the premium rate is very low, reflecting the high value but extremely low risk. Consequently, the loss expectancy is extremely low at 0.6%.
- CGA (Consumer Guarantee Act) liability and cyber risks are similarly low, reflecting the limited cover and risks insured under these self-insured policies. These loss expectancies are also extremely low at 11% and 4% respectively.
- The Transmission line cover (T&D) is property risk and the loss expectancy higher at 15%. This reflects the risks on long distances of transmission lines, which are relatively low in value per km and geographically diverse.

³³ The ratio appears to be calculated as approximately expected loss / retained risk (\$3.01m³³/\$25m = 12.0%). Expected losses are taken from the actuarial report accompanying Transpower's expenditure submission.

- The MDBI below deductible endorsement is a better like-for-like risk comparison. The loss expectancy of 59.5% is high, reflecting the risks, value of assets insured under this policy and the loss or claim history which is high. This is the most appropriate comparative for risk types.

Applying the Commerce Commission ratio on a like-for-like risk/insurance policy basis:

Policy (figures in \$ millions unless otherwise specified)	Cover (a)	Retained (b)	Expected Loss (c)	Implied ratio ((c)/(b)) (d)	Estimated expected losses ((b)x(d)) (e)	Aggregate expected losses ((c) + (e)) (f)	Actuary & Market Premiums (g)	Actuary & Market Premium ratio (h)
MDBI below deductible	2.00	2.00	1.19	59.5%		1.19	1.54	77.0%
Cables IEB	10.00					0.06	0.15	1.5%
T&D	10.00	10.00	1.50	15.0%		1.50	2.52	25.2%
CGA	2.00					0.22	0.22	11.0%
Cyber	1.00					0.04	0.05	5.0%
Totals	25.00	12.00	2.69	22.4%	0.00	3.01	4.48	
MDBI	750.00	10.00		22.4%	2.24	2.24	2.47	24.7%
Cables	90.00	23.75		22.4%	5.32	5.32	3.24	13.6%
	865.00	45.75	2.69	22.4%	7.57	10.58	10.19	
Transpower's submission – Property only implied premium (\$10.58 – 10.19)							0.39	
Multiplied by the 5-year RCP (\$0.39 x 5-years)							1.93	

Table 7: Applying Commission's implied ratio on a like-for-like risk/insurance policy basis

Appendix D. Insurance opex: actuary and broker reports



Draft: 14th June 2019

14th June 2019

To: The Board of Directors
Transpower New Zealand Limited

From: Peter Davies
Consulting Actuary

**re: Commerce Commission report
Transpower's individual price-quality path from 1 April 2020
Draft decisions and reasons paper**

Dear Sirs,

1. Introduction

- 1.1 We have been asked to assist in responding to the Commerce Commission report "Transpower's individual price-quality path from 1 April 2020 Draft decisions and reasons paper"
- 1.2 The particular point considered is the Commerce Commission's draft decision to reduce the operating expense over RCP3 for insurance premiums for the cover provided by its captive insurer Risk Reinsurance Limited (RRL) by \$15.7m.
- 1.3 The Commerce Commission has calculated this reduction by basing the premium on the expected value of loss for Transpower's self-insured policies rather than market premiums.
- 1.4 In section I178 they state

"As we indicated in our Issues paper, we consider that there is a question of the appropriate allowance for internally insured (self-insured) policies, and

whether this might be appropriately set at the expected value of loss (including expenses)”

I have not seen this paper but they appear to have now based an appropriate premium solely on expected losses as per I184.1

“Reducing amounts paid to RRL to reflect expected loss rather than market premiums”

1.5 In section I180 they state

“As noted above, Transpower provided an actuary’s report in support of its proposed insurance opex. It sets out the expected value of loss, and the forecast administration expenses, for a number of Transpower’s self-insured policies. Applying this ratio across the internally insured policies, this results in a difference of \$15.7m.”

Whilst the exact method used is not clear they admit that “this methodology only produces a rough estimate” but have reduced the insurance opex by this amount for the draft decision.

1.6 I believe the appropriate allowance for insurance costs to be paid to RRL needs to be the insurance premium that Transpower would pay commercially, were there a market for the risks that they cover, not just the expected claim cost.

The Commerce Commission is effectively saying that Transpower should be penalised for the fact that there is no ready market available for insuring the assets that are being self-insured. In other words, where there is a market for such risks, the Commerce Commission is happy for Transpower to include the costs of providing insurance including the costs of administration, and the risk margins required for taking on an insurance risk, but not if the cover is self-insured.

Or to put it differently, would it be reasonable for the Commerce Commission to "look through" all the insurance costs of power companies, and allow them only the underlying expected claim cost of providing this cover (on the basis that it is the power company's decision to insure these risks externally, why then should consumers be penalised for this?). The simple answer is that power companies are not insurers, nor should they be. However there is a cost to taking on insurance risk, namely the risk margins that need to be applied to taking on this risk, the management costs of acting as an insurer and the cost of capital to support these activities, and this should give the same ultimate outcome in the operating expense allowances that power companies allow for, regardless of whether a risk is insured commercially or not. Transpower shouldn't be penalised for the fact that there is no ready market for insuring some of its assets (which effectively is the case if this draft decision is implemented, as Transpower would be taking on an insurance risk with none of the normal pricing factors that insurers have to allow for).

- 1.7 The actuarial and market premiums incorporate an allowance for expected losses, administration costs, cost of capital and uncertainty in claims experience. This is a standard method of pricing for any insurance product.
- 1.8 The reduction of \$15.7m equates to approximately \$3.1m each year. Proposed premiums for 2020 were \$10.2m so this implies an allowance for expenses, risk and cost of capital of around 30% of gross premiums, which is actually on the low side for a commercial risk of this nature, from my experience.

If anything, Transpower would have a reasonable case for arguing that the risk allowance in particular, for retaining these risks in-house, should be even higher than we have allowed for, as these allowances for this type of risk (exposed in particular to major seismic and major weather events) would normally be even higher in the commercial market. Insuring property risks is a highly volatile activity which places capital at risk of loss, as general insurers around the world have found repeatedly over the years, and as New Zealand insurers found very much with the February 2011 Christchurch earthquake (with some being forced to close, AMI effectively failing and having to be bailed out by the taxpayer at great expense, and most other insurers requiring major injections of capital from their parents as their catastrophe reinsurance facilities were exhausted).

I would be very happy to answer any queries concerning this letter.

Yours sincerely

Peter Davies B.Bus.Sc., FIA, FNZSA
Consulting Actuary

Chris Sutherland
Treasurer
Transpower New Zealand Limited
By Email

19 June 2019

Dear Chris,

RCP 3 – Draft Decision and Reason Paper – Captive Premiums

Further to our discussions with regard to your RCP3 submission, I have as requested reviewed the Commerce Commission Draft Decision dated 29th May 2019 as it relates to the matter of the proposed premiums paid to the Transpower captive insurer for self insurance.

You have asked Marsh Limited (Marsh) to provide an opinion on the comment made in paragraph I178 which reads:

As we indicated in our issues paper, we consider that there is a question of the appropriate allowance for internally insured (self-insured) policies, and whether this might be appropriately set at the expected value of loss (including expenses).

The suggested approach is detailed in paragraph I180 which reads:

As noted above, Transpower provided an actuary's report in support of its proposal. It sets out the expected value of loss, and the forecast administration expenses, for a number of Transpower's self-insured policies. Applying this ratio across the internally insured policies, this results in a difference of \$15.7m.

We understand the suggested approach from the Commerce Commission is to apply the expected value of losses to all self-insured policies and retentions that Transpower insurers through its Captive insurance company Risk Reinsurance Limited (RRL).

General Approaches to Captive Premiums

There are four main ways in which captive insurance companies go about setting the appropriate premiums to be charged to their parent company. These are

- 1) Using commercial insurance market rates

- 2) Using commercial insurance market rates discounted to allow for the improved claims experience and efficiencies that a captive approach offers over the general insurance market
- 3) Basing the premium on the cost of reinsurance required and then loaded for the risk that the captive retains
- 4) Creating its own premium rating system

Creating its own premium rating is generally viewed as the most risky because incorrect calculation can mean that the premium is inadequate to pay any losses.

Different organisations have different reasons for setting up a captive and will create their own approaches. It is important to note the difference between policies that are reinsured and those that are fully retained by the captive.

Where reinsurance and risk transfer to the insurance market applies it is more prudent to follow one of the first three approaches. Where there is no risk transfer or where the insurance market will not offer premiums for the risk then creating an alternative rating basis makes sense.

Commerce Commission Suggested Approach

The Commerce Commission has suggested that the expected value loss ratio be applied for a number of Transpower self-insured/captive policies. Transpower have advised that this has been calculated as follows:

Policy	Cover	Retained	Expected Loss	Ratio
MDBI below deductible	2.00	2.00	1.19	59.5%
Cables IEB	10.00	10.00	0.06	0.6%
T&D	10.00	10.00	1.50	15.0%
CGA	2.00	2.00	0.22	11.0%
Cyber	1.00	1.00	0.04	4.0%
Totals	25.00	25.00	3.01	12.0%

It would then appear that the average 12% loss ratio has been applied to all policies that are issued by RRL as follows:

Policy	Cover	Retained	Expected Loss	Implied ratio	Implied premium	Actuary & Market Premiums	Actuary & Market ratio
MDBI	750.00	10.00		12.0%	1.20	2.47	24.7%
Cables	90.00	23.75		12.0%	2.86	3.24	13.6%
MDBI below deductible	2.00	2.00	1.19	59.5%	1.19	1.54	77.0%
Cables IEB	10.00	10.00	0.06	0.6%	0.06	0.15	1.5%
T&D	10.00	10.00	1.50	15.0%	1.50	2.52	25.2%
CGA	2.00	2.00	0.22	11.0%	0.22	0.22	11.0%
Cyber	1.00	1.00	0.04	4.0%	0.04	0.05	5.0%
Totals	865.00	58.75	3.01	12.0%	7.07	10.19	17.3%
Actuarial and market premium - Commerce Commissions implied premium						(3.12)	
Multiplied by the 5-year RCP						(15.58)	

Policy Types

As mentioned above there are different ways in which to calculate captive premiums, and we understand the question raised by the Commerce Commission.

Using the expected losses plus costs to calculate out the premiums is one way to do this. However we think that this is most appropriate where there is a historical track record of claims and/or the Captive is exposed to relatively low levels of predictable risk. This is to limit the volatility to the Captive.

Volatility in the results of the Captive will jeopardise its ability to provide the range of solutions it currently does and may require additional premiums and/or for currently self-insured/captive policies to be transferred to the commercial insurance market, at potentially higher prices in the future.

In our view low frequency policies with potential high impact claims should not be considered for the approach suggested. Our view of the policies that RRL write is as follows:

Policy	Suitability of Expected Loss Value	Comment
MD/BI	Not suitable	Low frequency high impact. A significant MD/BI event in Wellington could use the full \$10m retention in any one event
Cables	Not suitable	Similar to the MD/BI and possibility that both MD/BI and Cook Strait Cables could be impacted in the same event
MD/BI Below deductibles	Possible	Attrition losses limited in the year. However may stack losses with the main MB/BI
Cables IEB	Possible	There is little claims information available, but with the wide spread distribution impact should be limited
Transmission and Distribution	Possible	Spread of risk across the country, possible to be impacted by the same event as the MD/BI but at a lower level
Consumer Guarantees Act	Yes	Low retention
Cyber	Yes	Low retention

While it is for Transpower as the parent company of RRL to agree how the premiums should be charged, we do not believe that either the Material Damage or Cables policies are suitable for such an approach because:

- 1) Both policies have large retentions and are exposed to key catastrophe risks. Given the location of Transpower's assets, it is possible that both policies could be impacted by the same event. Accordingly, using a loss estimate basis will under-price the risk being assumed
- 2) Catastrophe events are infrequent by nature. However, when they occur RRL will be exposed to its full retention on these policies. There is no certainty as to when the event might happen and adequate financial provision needs to be made.
- 3) We expect that Transpower opted to self-insure these policies because either the commercial insurance market did not want to provide the cover to the levels being provided by RRL or that the premiums to do so were far higher than the captive has historically been charging

Page 5
19 June 2019
Chris Sutherland
Transpower New Zealand Limited

With the non catastrophe policies there is an element of funding expected and predictable losses. If they were transferred to the insurance market this would be viewed as dollar swapping. The predictability means that expected losses are “reasonably” certain and can therefore be provisioned.

Loss Ratio

There is nothing inherently wrong with applying expected loss value plus expenses to the captive premiums. However, applying a flat 12% across all policies does not make sense as it mixes catastrophe and non catastrophe policies together, and accordingly under-prices the risk.

We suggest that if this is the desired approach an actuarial review should be undertaken on these risks specifically and that the review should include an assessment of any catastrophe loss modelling that is available.

Summary

In summary we understand why the Commerce Commission has posed the question, however our opinion is:

- 1) There are a number of ways in which Captive premiums and costs can be allocated
- 2) Using expected losses plus costs would best suit policies where there are high frequency of claims, and good claims data is available allowing detailed modelling of future positions to be undertaken with a high degree of accuracy. An example would be a large motor fleet
- 3) That policies that are exposed to significant infrequent catastrophe risks would best follow the commercial insurance market, with discounts applied for the lower cost basis as this ensures that the correct risk price is charged
- 4) That using the same expected loss ratio across all policies does not make sense and under-prices the catastrophe risk
- 5) That under-pricing the risk will potentially jeopardise the future viability of the captive

I trust that this is in order and I will be happy to discuss this further.

Yours sincerely,

Page 6
19 June 2019
Chris Sutherland
Transpower New Zealand Limited



Richard Sheehan
Head of Corporate & Sales

Appendix E. Technical clarifications

This appendix sets out two technical clarifications.

GP1 and GP2 incentive rates

The draft decision reduces the revenue at risk for revenue-linked grid output measures. It appears that the Commission introduced an inconsistency when recalculating GP1 and GP2 incentive rates.

The grey numbers in the table below show our calculated incentive rates (using the draft decision revenue at risk). The corresponding, and in our view inconsistent, rates from the draft decision are on the right-hand side.

Row Labels	Number			\$ at risk	Rate (per interruption)		Commission numbers
	Cap	Target	Collar				
N-1 Security High Economic Consequence	-	7	14	1,466,667	209,524		183,333
N-1 Security Material Economic Consequence	7	24	41	389,333	22,902		21,630
N Security High Economic Consequence	4	6	8	266,667	133,334		133,333
N Security Material Economic Consequence	8	23	38	336,000	22,400		21,000
N-1 Security Generator	5	9	13	133,333	33,333		33,333
N Security Generator	6	12	18	133,333	22,222	Total: 2,725,333	22,222
Row Labels	Duration			\$ at risk	Rate (per interruption)		Commission numbers
	Cap	Target	Collar				
N-1 Security High Economic Consequence	30	92	154	2,933,333	47,312		42,512
N-1 Security Material Economic Consequence	36	61	86	778,667	31,147		28,840
N Security High Economic Consequence	-	103	206	533,333	5,178		5,178
N Security Material Economic Consequence	-	140	280	672,000	4,800		4,800
N-1 Security Generator	71	174	277	266,667	2,589		2,151
N Security Generator	11	93	175	266,667	3,252	Total: 5,450,667	3,252

Table 1: Inconsistencies in recalculated GP1 and GP2 incentive rates

Our formula calculates the incentive rate as the \$-at-risk divided by the target-to-collar spread. For example, the top line is calculated as $\$1,466,667 / (14 - 7) = \$209,524$.

Treatment of operating leases in revenue calculation

The treatment of operating leases is subject to a separate consultation.¹ As explained in our submission on that consultation, we support the Commission's proposal.²

We note that the MAR figures in the draft decision includes amounts in relation to operating leases. Under the Commission's proposed treatment, these figures would be capitalised as a value in use asset rather than included as expenses.

¹ Commerce Commission (6 June 2019). *Treatment of operating leases*. This report can be accessed on the Commerce Commission website at https://comcom.govt.nz/_data/assets/pdf_file/0017/152108/Treatment-of-operating-leases-Issues-paper-6-June-2019.pdf.

² Transpower (27 June 2019). *Treatment of operating leases*. This report can be accessed on the Transpower website at <https://www.transpower.co.nz/keeping-you-connected/industry/regulatory-submissions>.