INITIATIVES PLAN
FOR REGULATED TRANSMISSION SERVICES

Keeping the energy flowing
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Transpower’s grid services are regulated through five-year regulatory control periods (RCPs). For each RCP we set target levels of performance, and our revenue is set at a level intended to cover the cost of delivering that level of performance into the future. This document sets out our current view of key initiatives we will pursue in coming years to support this process for RCP3, which is the period beginning 1 July 2020¹.

As we prepare this plan we are entering the RCP2 period, which brings a new performance framework, tighter funding, more complex financial incentive arrangements and new reporting obligations. The magnitude of these changes is such that we cannot respond through incremental changes or initiatives. We have started a transformation process that will drive improved effectiveness and efficiency in coming years, and will support robust planning for the RCP3 period.

We are starting by re-engineering our grid operating model – i.e. changing the way that we carry out strategic and tactical asset management and work scheduling and delivery. Our plans for RCP3 are tightly linked to this process.

¹ This document meets the requirements in the Transpower Individual Price-Quality Path Determination 2015 to prepare a plan of business improvement and performance measure development initiatives (clause 27) and an asset health models plan (clause 28.3).
1. INTRODUCTION

As a companion to our first regulatory control period (RCP1) determination we agreed several business improvement initiatives with the Commerce Commission and reported regularly on our progress. The initiatives focussed on ensuring Transpower would be able to submit a robust proposal to the Commission for the RCP2 period (the five years from 1 July 2015).

This Initiatives Plan is a continuation of this practice, which has become a useful part of how Transpower’s Individual Price-Quality Path (IPP) regulation operates.

1.1 Services Covered by the Initiatives Plan

This Initiatives Plan covers services regulated by IPP regulation. This covers most (~90% by revenue) of our business but excludes:

- System Operator services we provide under contract with the Electricity Authority;
- Non-IPP transmission services (e.g. new connections and configuration changes initiated and funded by customers or third parties);
- Other non-IPP activities (e.g. our emsTradepoint business).

We have an IPP revenue path set every five years based on target service levels and forecast costs (including new expenditure and the cost of funding previous investments). Within each period we have financial incentives to achieve target service levels and improve efficiency. The Commission relies on incentives to drive efficiency improvements, so the main focus of the Initiatives Plan is to support the five-yearly process of proposing (Transpower) and evaluating (Commerce Commission) IPP service levels and expenditure plans.

1.2 Activities Covered by the Initiatives Plan

The Initiatives Plan focuses on initiatives that will support development of a robust service and expenditure plan for RCP3. In December 2018 we will provide the Commission with our RCP3 proposal and an associated Integrated Transmission Plan (ITP) that together:

- Set performance targets that are supported by economic analysis and that we have tested with our customers; and
- Provide an expenditure forecast for the five years from 1 July 2020 that is robust, deliverable, and sufficient to sustain target performance into the future.

To have finalised plans ready by December 2018, we will need to have a firm view of RCP3 performance targets by September 2017 and a substantially complete expenditure plan by September 2018. This means that the next two years are the most important period for setting performance targets and improving our planning processes.
1.3 Structure of this Document

The first section of the Initiatives Plan deals with development of performance targets for RCP3.

We set out a framework for describing the services we provide, summarise the current state of development and explain our plan for setting RCP3 targets. Our aim is to settle on a few simple targets that best capture the value we deliver for consumers.

The second part of the Initiatives Plan deals with planning improvements.

We present our planned grid operating model and use this to explain key initiatives that will help us prepare a robust expenditure plan for the RCP3 period.
2. PERFORMANCE TARGETS

This section sets out the components of our services framework that drive IPP expenditure and performance outcomes, and for each service summarises the current state of our performance measures, our development plans for the next 27 months and our current view of the desired target-setting framework for RCP3.

Overall, our goal is to have a small set of simple, well calibrated and carefully designed measures for RCP3 that capture the essence of the services we deliver.

We want to have our measures and targets well defined as we enter the detailed planning phase for our RCP3 proposal. To achieve this, we plan to publish an engagement paper with our September 2016 Integrated Transmission Plan (ITP) update and to publish measures and targets with our September 2017 ITP update. Prior to September 2016 we will focus on research and investigation work. Between ITP updates we will focus on engagement with customers, retailers, the Commerce Commission and other stakeholders. This sequence is illustrated in the diagram below.
2.1 Services Framework

We have developed a new services framework that identifies four key IPP services\(^2\).

<table>
<thead>
<tr>
<th>Service</th>
<th>Description</th>
<th>Link to IPP Regulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reliable Grid</td>
<td>Consumers expect us to keep interruptions to a low level, and to restore supply quickly when there is an interruption.</td>
<td>Biggest expenditure driver. Improved measures for RCP2. Plan to keep RCP2 measures and refine targets.</td>
</tr>
<tr>
<td>Event Communications</td>
<td>When supply is interrupted we need to communicate well with our customers to achieve the best outcomes for end users.</td>
<td>Not measured previously. We will trial some measures and aim to develop a single measure for RCP3.</td>
</tr>
<tr>
<td>Available Grid</td>
<td>Making capacity available provides resilience and allows lowest cost generation to be used to meet demand. Stable outage plans help other suppliers operate efficiently.</td>
<td>Measured in RCP1, improved measures for RCP2. We will trial and develop improved measures for RCP3.</td>
</tr>
<tr>
<td>Fitness for Service</td>
<td>Not strictly a service, but other outcomes lag expenditure so measuring “fitness” can provide lead indicator that expenditure is at sustainable level.</td>
<td>Measures in RCP2 of asset health and replacement volumes for some assets. We will develop more appropriate measure for RCP3.</td>
</tr>
</tbody>
</table>

The majority of our expenditure on the grid is incurred so that we can deliver these services. It follows that altering our target level of performance would, in the long-run, alter our price path\(^3\).

2.2 Reliable Grid

In RCP1 we measured reliability using ‘system minutes’, which provides a system-wide measure of how much energy demand is unmet due to unplanned interruptions. Targets were set based on maintaining historic performance levels.

For RCP2 we developed a new approach that separately measures how often a customer experiences unplanned interruptions, average restoration time, and restoration time that we achieve nine times out of ten. We also defined five different service categories (high priority, important, standard, generator and N-security) and set forward-looking targets for each category. This approach means we have 15 reliability service targets for RCP2.

\(^2\) The services framework includes four other services that are not measured for IPP regulation because they are covered by other regulations or are unregulated. These are network access (connecting new customers to the grid and planning changes to existing connections), information provision (providing information to support effective operation of the sector), asset relocations (work funded by third parties to relocate or underground grid assets) and site access (hosting third party equipment on our sites).

\(^3\) We do incur expenditure to deliver other outcomes that are not subject to a consumer price-quality trade off, such as worker and public safety, and environmental impact.
The service categories are becoming embedded in how we operate our business. We have developed the ability to produce monthly internal reports of performance against the reliability measures and are prepared for our first audited disclosure in 2016. We are using the measures in our 2015/16 Statement of Corporate Intent and will publicly disclose performance each quarter. We are talking to our customers and service providers about the service categories, and we are using the categories as part of our decision making.

Overall, we are satisfied that the RCP2 reliability measures are appropriate and should be used again for setting RCP3 targets. Our development focus is therefore on calibrating the targets rather than changing the measures. Two key objectives are:

- Improving the economic basis for our targets – it may be possible to use empirical information on consumer preferences to refine our reliability targets. The Electricity Authority has developed improved survey techniques that could be used to estimate how much consumers would be willing to pay to avoid unplanned interruptions. This is traditionally termed the “value of lost load” (or VoLL) in New Zealand. There are limits on the usefulness of VoLL information (most of our grid connection points serve a large group of diverse consumers, and most interruptions are due to distribution network interruptions rather than problems on our network) but it is worth investigating whether we can use better VoLL information to improve the economic basis for our reliability targets; and

- Refining restoration targets – our initial experience indicates that the RCP2 restoration targets for N-security and generator sites would be expensive to meet. We will develop better cost and feasibility information to support targets for RCP3.

Our September 2016 engagement paper will address both of these matters.

In its decision on RCP2 service targets and revenue path, the Commerce Commission suggested three other reliability measures for consideration:

<table>
<thead>
<tr>
<th>Code</th>
<th>Suggested Measure</th>
<th>Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>PMD6</td>
<td>Number of unplanned momentary (less than one minute duration) interruptions</td>
<td>This measure is readily reported from the same systems that produce our other reliability measures. We will include this measure in our annual reporting.</td>
</tr>
<tr>
<td>PMD7</td>
<td>Energy not supplied for each point of service for each unplanned interruption</td>
<td>We will not report this measure. Our work on improving the economic basis for reliability targets will investigate combining energy information with VoLL estimates to refine targets.</td>
</tr>
<tr>
<td>PMD9</td>
<td>Compliance with obligations to report on unplanned interruptions</td>
<td>We will not report this measure. We provide post-event reports as part of our connection agreements with customers, and are reviewing timing and depth of these reports.</td>
</tr>
</tbody>
</table>

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4 **Link** – some of the measures arose from our own consultation on RCP2 measures and some arose from the RCP2 reset process.

5 The benchmark agreement, which is a default connection contract set out in the Electricity Industry Participation Code, includes an obligation for us to provide customers with a post-event report within 42 days of an unplanned interruption.
Our engagement with customers in preparation for RCP2 also highlighted that momentary voltage disturbances can cause interruptions and were a concern for some customers. We found that there was limited information on the extent of such disturbances, where the disturbances originated from, or the capability of end user assets to ride through such disturbances. We have set up a working party that is investigating this matter further.

2.3 Event Communications

Effective communication during an unplanned outage helps our customers deal with the interruption to their supply. For direct customers they can make better production decisions (e.g. whether to stand down staff), for distribution customers they can manage their own network and communicate effectively with retailers and end consumers, and for generators they can manage their plant (e.g. spill or hold water) and their trading position.

We did not measure our event communications performance in RCP1 and do not have measures defined for RCP2. For RCP3 we aim to develop a measure that captures the quality of our event communications service. We are investigating two types of measurement approach:

- Communications data – we have developed the capability to capture data on when our grid operators make contact with each customer, when we provide updated information and whether restoration time estimates are accurate. This is based on three measures from the RCP2 decision paper (PMD1, PMD2 and PMD3); and
- Survey measure – as part of work to develop a new customer survey, we are investigating whether we may be able to use targeted post-event surveys to obtain a holistic measure of the quality of our event communications.

Our September 2016 engagement paper will address both of these options and will include reporting on a pilot of the three PMD measures.

2.5 Available Grid

We do not make the full capacity of the grid available at all times because we need to take equipment out of service for maintenance and upgrade work, and because equipment sometimes fails. In the vast majority of cases, making assets unavailable does not interrupt supply to end consumers but it can:

- Increase the risk of unplanned interruption – removing an asset from service increases reliance on the remaining in-service assets to transport energy. If one of the in-service assets has an unplanned outage then there may not be sufficient back up capacity available to avoid an unplanned interruption; and
- Reduce the efficiency of the electricity supply chain – increased loading on in-service assets increases losses. In addition, when the capacity of the grid is reduced then it may not be possible to access the lowest cost mix of generation. This can increase energy costs, and can also cause price separation between pricing nodes\(^6\), which increases trading risk (and hence cost) for market participants.

In addition, market participants have to plan their production and trading decisions around our outages, so the stability and predictability of our outage planning is important. Stable and predictable planning makes it easier for market participants and helps improve the efficiency of the overall electricity supply chain.

In RCP1 we measured and reported on the energy availability of our inter-Island HVDC link and the availability of our HVAC circuits\(^7\). We have refined the HVAC measure in RCP2 by capturing only circuits that have the most impact on losses or constraints. Both RCP2 measures have targets set based on forward-looking analysis of achievable performance.

For RCP3 we would like to develop different measures that better capture the three key aspects of grid availability – economic constraint, resilience, and plan stability. Our September 2016 engagement paper will address options for improved availability measures.

In its decision on RCP2 service targets and revenue path, the Commerce Commission suggested three other availability measures for consideration\(^8\).

<table>
<thead>
<tr>
<th>Code</th>
<th>Suggested Measure</th>
<th>Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>PMD4</td>
<td>Adherence to planned outage start and finish times</td>
<td>We will not report these measures. In the near term we are focussed on improving the stability and visibility of our plans. The suggested measures would be relatively cumbersome to track and risk creating perverse incentives. We will investigate better measures of plan stability.</td>
</tr>
<tr>
<td>PMD8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PMD5</td>
<td>Extent to which we place customers on ‘N’ security</td>
<td>We have developed the capability to measure this ex ante (after the fact). Further investigation will inform our engagement paper.</td>
</tr>
</tbody>
</table>

\(^6\) The New Zealand electricity market sets prices at more than 200 pricing nodes across the transmission grid. Prices are set at a level that reflects the marginal cost of supply at each node. If grid capacity is constrained then prices downstream of the constraint increase relative to prices upstream of the constraint. This creates a financial risk for retailers and other market participants.

\(^7\) We measure energy availability for the HVDC link because some asset outages require partial de-rating of the link, and the link has a unique role linking North Island and South Island markets.

\(^8\) Link – some of the measures arose from our own consultation on RCP2 measures and some arose from the RCP2 reset process.
2.5 Fitness for Service

Performance against IPP service targets is strongly influenced by historic investment decisions, so it is useful to complement other service measures with one or more lead indicators of the ‘fitness for service’ of the grid.

In RCP2 we will have a financial incentive to deliver planned asset replacements for six fleets, and an obligation to report asset health information for transformers, towers and outdoor circuit breakers. These are transitional requirements that we would not expect to see repeated in RCP3.

Financial incentives linked to delivering planned volumes cut across incentives to enhance efficiency by slowing or better targeting asset replacement programmes. Incentives linked to asset health measures would similarly risk undermining opportunities to improve asset management, and would have the further disadvantage of stunting or distorting development of improved asset health models and measures.

In Section 3 of this plan we explain work we have underway on business transformation. To align with that process, we will publish an asset health modelling plan by March 2016 and will include material in that plan on the role of fitness measures in RCP3.
3. PLANNING AND FORECASTING INITIATIVES

To operate our business effectively and efficiently we need to be good at planning ahead for the work needed to deliver services to our customers. The IPP regulatory control period cycle reinforces this and creates a specific requirement for us to produce an especially robust, well documented and transparent seven year plan every five years.\(^9\)

December 2013 was the first time that we produced a regulatory-grade seven year expenditure forecast. This required significant work above and beyond our then business as usual practices and involved developing and applying new tools and processes.

3.1 Context of Transformational Change

For the RCP2 period we have a very challenging 7.5% efficiency target across our entire capex programme, similar pressures on operating expenditure, tighter funding arrangements, more complex financial incentives and new reporting obligations. We have started a business transformation process to respond to this challenge. One of the central components of the transformation process is Project Atlas, which includes:

- A re-engineered grid operating model – designed to achieve a more systematic, risk-informed way of scoping, prioritising and optimising our grid work plan. This will change the way we operate and will require changes to roles and structures. We have developed and agreed a detailed process model and have scoped role and structure changes;
- A new services framework – designed to clarify our services and support engagement with our customers on service levels. We have defined seven services, three of which are directly relevant to IPP regulation (refer Section Two);
- Works planning and delivery improvements – we are implementing process, governance and systems changes so that we can achieve a more stable, visible and controlled work plan that we can release to service providers earlier. This should support more stable and predictable outage plans, and more efficient delivery;
- Service provider contract changes – we are changing the way we procure maintenance services and project works. We are providing our service providers with a more stable and predictable workload so that they can run their businesses more efficiently while lifting quality and improving safety;
- Engineering design consultant changes – we are improving the way we work with engineering consultants to make sure we jointly deliver better value, innovation and efficiencies during construction, procurement and asset operation;
- Improving asset feedback – making sure that we have and use appropriate information to optimise maintenance and to support strategic and tactical asset management decisions;
- Improved asset procurement – improving supplier arrangements, inventory and warehousing practices;
- Data automation – investigating technology initiatives that streamline asset management information processes;

\(^9\) Our December 2018 Integrated Transmission Plan will forecast expenditure for the 11½ years to June 2025 (i.e. the remainder of RCP2, plus RCP3 and RCP4) but the Commission will only set revenue for RCP3. This recognises that forecasting uncertainty beyond seven years is too large to support revenue setting.
• A number of other initiatives, still being scoped, to improve maintenance work practices and reduce operational costs.

In parallel with this transformation process we have been improving our core planning and reporting systems and have developed a new strategic framework and business planning approach. This includes re-developing some of our core planning documents, including:

• Transmission Tomorrow – we are re-positioning Transmission Tomorrow as an environmental scan and long-term planning document that informs our grid and system operator strategies; and

• Integrated Transmission Plan – we are consolidating the material that supported our RCP2 proposal into a new, more accessible and better integrated format.

These initiatives will support our commercial performance in the RCP2 period, and assist us to prepare robust service targets and expenditure plans for RCP3. Project Atlas touches all aspects of how we plan and forecast service levels and expenditures for our IPP services, including the areas specifically mentioned by the Commission in its RCP2 decision paper:

• Asset health modelling;
• Asset criticality;
• Economic basis for interruption targets;
• Planned outage optimisation;
• Processes, policies and data maturity;
• Cost estimation;
• Economic evaluation of policies; and
• Mitigating delivery resource availability risks.

### 3.2 Engagement Approach

One of our key lessons from the RCP2 process is that we should be able to smooth workload and produce a better outcome if we have early and open engagement with the Commission and stakeholders on our RCP3 plans.

As described in Section 2, we have designed our approach to developing RCP3 performance measures and targets so that it supports early engagement. Other areas where we expect to have early engagement include:

• Our long-term planning outlook – this influences the volume of enhancement and development work during RCP3, and will also inform our plans for maintaining any parts of the grid with uncertain future demand;
• Decision support tools – the data and information that we will use to decide on the scope and timing of our RCP3 work programme;
• Evolving asset management strategies, tactics and plans – we will publish three Integrated Transmission Plan updates (in September each year) before we finalise our RCP3 plans. This process will reveal how our plans evolve in coming years;
• Systems, processes and formats – the mechanics of how we will generate and communicate our plans, and how we will use our plans to support regulatory decisions (i.e. on allowances, performance targets and revenue forecasts); and
• Evaluation approach – the methodology and techniques that the Commission will use to evaluate our plans.

3.3 Development Plans

In the context of our transformation process and our planned engagement approach, we have identified two areas where we will develop and share targeted development plans. We will target publication by the end of March 2016 of:

• Cost Estimation Development Plan – to cover inputs, systems and reporting;
• Asset Health Modelling Plan – plans for developing and enhancing asset health models.
APPENDIX A: CONSOLIDATED DELIVERABLES AND MILESTONES

Publish performance targets engagement paper with ITP update

Lock down targets for planning phase

Performance targets investigation phase:
- VoLL
- Restoration
- Event comms
- Available grid
- Fitness

Engage and refine

Development Plans:
- Cost estimation
- Asset modelling