A SUPPORTING DOCUMENT TO OUR 2015 INTEGRATED TRANSMISSION PLAN

SERVICES REPORT 2015

TRANSPower

Transpower New Zealand Ltd The National Grid
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1. INTRODUCTION

This chapter explains:

- the **purpose** of this report
- the **services** covered in this report
- **context**.

1.1. PURPOSE

This report describes service measures for our regulated transmission business and our performance targets for the next 10 years. It explains our services framework, how we apply the framework and how we plan to develop our targets and measures in future.

The Services Report is one of three supporting documents for our Integrated Transmission Plan (ITP). The ITP provides an overview of our 10 year plans for our regulated transmission business, and is designed to satisfy regulatory requirements.

![Figure 1: Structure of our 2015 Integrated Transmission Plan](image)

We update the Integrated Transmission Plan most years, and update the supporting documents at least every second year.

1.2. SERVICES COVERED BY THIS REPORT

This report covers measures and targets for our regulated transmission services for the regulatory control period which began on 1 July 2015 (RCP2) and the subsequent period which begins on 1 July 2015 (RCP3).

The report does not cover our other services such as system operator services, new connections funded by customers or third parties, and other non-regulated activities.

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1 The Transpower Capital Expenditure Input Methodologies (Capex IM), published by the Commerce Commission requires us to prepare an ITP every five years, and to provide updates most years. The Capex IM is available on the Commerce Commission’s website. This document fulfils the requirements of the Outputs and Performance Objectives Report required by the Capex IM as a supporting document for the ITP.
1.3. 2015 CONTEXT

The 2015 ITP and supporting documents provide the first update since our 2013 ITP, which was embedded within our regulatory proposal for RCP2.

The Services Report updates our 2013 Service Performance Measures report, which introduced a new set of more customer-focussed measures and targets. These measures and targets were modified in 2014 through the RCP2 regulatory evaluation process. We have subsequently developed a new services framework for our business that encompasses our regulatory measures and other services that we provide (such as customer-funded new connections).

We will use our services framework to help us develop service measures and targets for RCP3. The next major milestone in this process will be publishing an engagement paper in 2016. Our recently published Initiatives Plan provides more detail on our development plans.
2. BACKGROUND

This chapter provides overviews of:

- our transmission services framework
- service measures, targets and development plans for our three key services.

2.1. OUR TRANSMISSION SERVICES

We recently developed a services framework that identifies eight services, including our system operator business and activities not regulated under our price-quality path. The services are summarised in the figure below. The first three of these services are the most significant drivers of cost and quality for end consumers and are the focus of this report.

![Figure 2: Our services]

- Reliability
  - Keep interruptions to a very low level, and restore supply quickly when there is an interruption
- Grid availability
  - Keep sufficient grid capacity and resilience available to allow New Zealand’s lowest cost sources of supply to be used to meet demand
- Event communications
  - Communicate with our customers when supply is interrupted so we can achieve the best outcomes for end consumers
- Grid access
  - Work with customers to connect their assets to the grid, and plan and deliver changes to their connections
- Site access
  - Safely host customer equipment on our sites
- Information provision
  - Provide planning and other information to assist connected parties to make informed decisions
- Asset relocation
  - Assist in the identification, selection and execution of options to relocate transmission infrastructure
- System operation
  - Operate a competitive electricity market and deliver a secure power supply

The remainder of this chapter covers our three main transmission services. It provides an overview of our RCP2 service measures and targets and development plans for each of the services.
2.2. RELIABLE GRID

The level of reliability experienced by our direct customers is heavily influenced by past decisions about the assets employed—their configuration, capability and quality—and their maintenance. These historic choices involved trade-offs between cost and service level. The choices we make now regarding operation, maintenance, replacement and new assets allow us to incrementally refine performance and cost over time.

2.2.1. RCP2 MEASURES

Prior to RCP2 we measured reliability using ‘system minutes’. This provides a system-wide measure of how much energy demand is unmet due to unplanned interruptions. We set targets based on sustaining historic performance levels. This approach supports comparison between transmission businesses but does not provide good information on the experience of individual customers.

For RCP2 we developed a new approach that measures how often a customer experiences unplanned interruptions, and how quickly we restore supply. We measure average restoration times, and restoration times 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.

For RCP2, these are known as our Grid Performance Measures (GP 1 to 3 for five different categories). These are described in more detail in Section 3.1.

2.2.2. DEVELOPMENT

We have two key development objectives for reliability measures and targets, which we will address in our 2016 engagement paper.

- Improving the economic basis for our 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.

- 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.

In its decision on RCP2 service targets and revenue path, the Commerce Commission suggested three other reliability measures for consideration. Some of these measures arose from our own consultation on RCP2 measures and some arose from the RCP2 reset process.
Table 1: Suggested reliability measures

<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.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>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&lt;sup&gt;3&lt;/sup&gt;</td>
<td>We will not report this measure.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>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>

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 are working with a group of customers to investigate this matter further.

2.3. GRID AVAILABILITY

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 customers or end consumers but it can:

- influence reliability through increasing the risk of unplanned interruption
- 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 and constraints are introduced 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<sup>4</sup>, 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.

<sup>3</sup> 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.

<sup>4</sup> 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.
2.3.1. **RCP2 MEASURES**

In RCP1 we measured and reported on the energy availability of our inter-island high-voltage direct current (HVDC) link and the availability of our high-voltage alternating current (HVAC) circuits. 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 RCP2, these availability service measures are known as our Asset Performance Measures (AP1 and AP2). These are described in more detail in section 3.3.

2.3.2. **DEVELOPMENT**

For RCP3 we would like to develop different measures that better capture the three effects of grid availability on customers—reliability, economic constraint and plan stability. Our 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 grid availability measures for consideration:

<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 risks creating perverse incentives.</td>
</tr>
<tr>
<td>PMD8</td>
<td>Extent to which we place customers on ‘N’ security</td>
<td>We will investigate better measures of plan stability.</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>

2.4. **EVENT COMMUNICATIONS**

Effective communication during an unplanned interruption helps our customers deal with the impact on their business—direct customers can make better production decisions, distributors can better manage their network and communication with retailers and consumers, and generators can better manage their resources and their trading position.

2.4.1. **RCP2 MEASURES**

We did not measure our event communications performance in RCP1 and do not have measures defined for RCP2 but will provide an update on event communications measures in our engagement paper.

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5 Some of the measures arose from our consultation on RCP2 measures and some from the RCP2 reset process.
2.4.2. DEVELOPMENT

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).

- **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 engagement paper will address both of these options and will include reporting on a pilot of the three PMD measures.
3. MEASURES AND TARGETS

This chapter:

- explains financial incentive arrangements
- describes our current measures and targets for grid reliability and availability in more detail
- provides an overview map.

A summary of all targets is provided in the 2015 ITP Schedule 8.

3.1. FINANCIAL INCENTIVE ARRANGEMENTS

From 1 July 2015, we have a direct financial incentive to meet or exceed our service targets. For each measure we have:

- a target performance level—if we meet the target then we do not receive any reward or penalty with respect to that measure. For example, we target nine interruptions per year across our population of 39 important points-of-service (i.e., approximately two unplanned interruptions every 10 years at each point of service).

- an incentive rate—the strength of each financial incentive is determined by the incentive rate. The rate is applied to the difference between actual and target performance. For example, the incentive rate for interruptions at important points-of-service is $0.242 million. If we have 14 interruptions at important points-of-service in a year, then we would receive a penalty of $(0.242 million \times (14 - 9)) = $1.21 million.

- a collar—the maximum penalty is limited by a collar. For example, the collar for interruptions at important points-of-service is 14 interruptions. If we have more than 14 interruptions in a year then the penalty will not exceed $1.21 million.

- a cap—the maximum reward is limited by a cap. For example, the cap for interruptions at important points-of-service is four (i.e., five below the target).

Caps and collars are symmetric; that is, the incentive rate is the same for rewards and penalties, and the limit is the same in both cases. The maximum reward or penalty across all measures is $10 million per year, which is more than 1 per cent of our annual transmission revenue.

We will assess the value of the reward or penalty after the end of each year, and apply an adjustment to our prices from the next available transmission pricing year. For example, the incentive for performance in the year ended 30 June 2016 (the first year of RCP2) will flow into prices from 1 April 2017.

With the exception of HVDC availability, we will apply incentive adjustments to our interconnection prices. We recover interconnection fees from offtake customers based on a measure of each customer’s peak demand. We will apply HVDC incentive adjustments to our HVDC prices, which are recovered from customers that inject energy into our South Island network.
3.2. RELIABLE GRID MEASURES AND TARGETS

Reliable grid measures and targets are concerned with the most important aspect of grid service performance for most customers—keeping interruptions to a very low level, and restoring supply quickly when there is an unplanned interruption.

3.2.1. CRITICALITY

A key feature of our reliability measures is that we have set targets depending on the assessed criticality of each point of service. This recognises that customer expectations and interruption impacts vary across the country, so we should not have a one-size-fits-all approach. We have assigned all points-of-service to one of five categories.

Table 3: Point-of-service categories

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>High priority</td>
<td>Very large or essential offtake customers</td>
<td>Bream Bay (oil refinery)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hobson Street (Auckland CBD)</td>
</tr>
<tr>
<td>Important</td>
<td>Key industrial offtake customer, or large number of end users</td>
<td>Kaiwharawhara (Wellington suburbs)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Motonui (methanol plant)</td>
</tr>
<tr>
<td>Standard</td>
<td>Balance of offtake customers</td>
<td>New Plymouth</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Glenbrook (steel mill)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Southdown (rail)</td>
</tr>
<tr>
<td>Generator</td>
<td>Grid-connected generators</td>
<td>Roxborough (hydro generator)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Huntly (thermal generator)</td>
</tr>
<tr>
<td>N-security</td>
<td>Customers served by a single line or transformer</td>
<td>Ohakune</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Poihipi (geothermal generator)</td>
</tr>
</tbody>
</table>

Our 2013 ITP provides a more detailed explanation of our approach to assigning point-of-service categories. For an updated list of points-of-service and their categories, refer to our website.

3.2.2. RELIABILITY MEASURES

We record every unplanned interruption and its duration. This data informs three reliability measures:

- the number of unplanned interruptions at each point of service (GP1)
- average duration of unplanned interruptions at each point of service (GP2)
- duration of long unplanned interruptions (GP3). This is a duration that exceeds 90 per cent of unplanned interruptions (P90).

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6 Service Performance Measures Report, 2013
7 We maintain a page on our website that provides regular updates relating to the RCP2 period.
We include two types of duration measures, recognising that we should aim to reduce the duration of all unplanned interruptions and should maintain an emphasis on the small number of very long unplanned interruptions.

We exclude very short (less than one minute) interruptions and interruptions relating to operation of New Zealand’s automatic under-frequency load shedding (AUFLS) system. Excluding AUFLS events represents a change from our 2013 ITP arising from the RCP2 evaluation process. As part of that process we updated our information on historic interruptions to exclude AUFLS events and adjusted our targets accordingly.

We include all other unplanned interruptions caused by faults on our network. We have not excluded extreme events (e.g., severe storms or earthquakes) but we do limit the maximum duration attributable to any event to seven days. Our 2013 ITP limited the maximum duration to 24 hours. The change to seven days arose as part of the RCP2 evaluation process.

Full definitions of the measures are available in our RCP2 individual price-quality path determination.

3.2.3. RELIABILITY TARGETS

We considered the following factors in setting long-term targets:

- what performance we should be able to deliver given the make-up of the grid
- customer views through our consultation process
- the costs and feasibility of improvements needed to deliver changes in performance.

We also cross-checked our targets against estimated VoLL.

Generally the long-term targets we determined using these considerations are an improvement on our current performance, but in some cases the targets are lower. In these cases we proposed a range from the historic performance to the long-term target.

RCP2 targets

To assess overall performance we aggregated the long-term targets across the different point-of-service categories. This provides a long-term view of overall performance and enables us to set targets for regulatory periods.

For RCP2 we have developed transitional targets to bridge gaps between historic performance and the long-term performance targets.

GP1 long-term performance targets

Most customers have N-1 security, meaning they will only experience an interruption at their point of service if there are concurrent equipment outages. This can happen when there are multiple equipment failures, or a single equipment failure at a time when other equipment is out of service for maintenance.

Estimating the average time between interruptions at a point of service is a complex exercise. We used a simplified model to calculate long-term targets for the number of interruptions at points-of-service.

Sites with N-1 or greater security should expect interruptions only once every few years or less. Sites with N-security might expect multiple interruptions per year. This is because the assets that

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8 Commerce Commission. Transpower Individual Price-Quality Path Determination 2015, Part 4
9 This is outlined in Appendix A of the Service Performance Measures report provided as part of our RCP2 proposal. An updated list is available on our website.
connect customers at N-security points-of-service have single points of failure that can result in an interruption.

Reflecting this, we developed individual GP1 targets for each N-security point of service$^{10}$. Table 4 sets out our long-term targets, RCP2 targets and historic rates. Our performance in the generation and standard categories is already above the long-term targets; we have set RCP2 targets that maintain our performance$^{11}$.

Table 4: GP1—Number of interruptions (historic performance June 06 – June 13)

<table>
<thead>
<tr>
<th>Category</th>
<th>Historic performance (average)</th>
<th>RCP2 target (count)</th>
<th>RCP2 target (frequency)</th>
<th>Long term target (count)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GP1: Number of interruptions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High priority</td>
<td>5.1</td>
<td>2</td>
<td>1 in 10 years</td>
<td>2.3</td>
</tr>
<tr>
<td>Important</td>
<td>10</td>
<td>9</td>
<td>2 in 10 years</td>
<td>8.6</td>
</tr>
<tr>
<td>Standard</td>
<td>27.9</td>
<td>26</td>
<td>3 in 10 years</td>
<td>33–39</td>
</tr>
<tr>
<td>Generator</td>
<td>11</td>
<td>11</td>
<td>3 in 10 years</td>
<td>11–20</td>
</tr>
<tr>
<td>N-security</td>
<td>67.6</td>
<td>56</td>
<td>Varies by site</td>
<td>63</td>
</tr>
</tbody>
</table>

We expect the population of each category to change slightly during RCP2 as we build new points-of-service, or transfer spur assets to customers. We will not update the targets for these changes.

GP2 and GP3 long-term duration targets

The duration of interruptions is largely driven by our operational capabilities. These include how quickly our operators can assess an event and determine the appropriate response; the time our service providers take to get to site and carry out any necessary repairs; and the location of our spares. Our approach to setting duration targets was to test potential targets with customers, and balance their expectations with performance that we considered was feasible given cost considerations.

Where a category historic average is already at, or better than, the long-term target, we have set an RCP2 target to maintain that performance. Where we need to make improvements to meet the long-term targets, the RCP2 target represents a transitional target.

Table 5: GP2 and 3—Duration of Interruptions (historic performance June 2006– June 2013)

<table>
<thead>
<tr>
<th>Category</th>
<th>Historic performance</th>
<th>RCP2 target</th>
<th>Long term target</th>
</tr>
</thead>
<tbody>
<tr>
<td>GP2: Average duration of interruptions (minutes)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High priority</td>
<td>96.8</td>
<td>70</td>
<td>30</td>
</tr>
<tr>
<td>Important</td>
<td>154.6</td>
<td>100</td>
<td>30</td>
</tr>
</tbody>
</table>

$^{10}$ Our approach to setting these N-security targets and a full list of the N-security targets are given in Appendix A of our Service Performance Measures report.

$^{11}$ The long-term targets for these categories do not imply that we are, at this time, aiming to provide a deteriorating service. We have proposed ranges for these long-term targets and will review these during RCP2, in preparation for RCP3. During this time we will refine our models for estimating long-term performance and discuss any changes to long-term targets with our customers.
### 3.3. Grid Availability

These measures are concerned with the impact that asset availability can have on access to the lowest-cost mix of generation.

Both planned and unplanned asset outages can lead to increased transmission constraints\(^\text{12}\) and system losses\(^\text{13}\). However, the impacts vary depending on the circuits concerned. Outages on some circuits can have little or no impact, whereas outages on others can have significant impacts.

The HVDC circuits allow power flows between the North and South Islands. Power flows from south to north at times when there is an excess of lower-priced generation in the South Island. During times of low hydrological conditions (e.g., dry years) power can be generated by thermal generation in the North Island, allowing the storage in the South Island lakes to be conserved.

Some of the HVAC circuits also have the potential to significantly impact constraints and system losses. We have included an availability measure for selected grid circuits that have significant impacts on either constraints or losses; for example, the 220 kV circuits from Haywards (near Wellington) to Bunnythorpe (near Palmerston North) through to Whakamaru (north of Taupo).

#### 3.3.1. Availability Measures

Our two grid availability measures are focussed on the transmission circuits that have the greatest impact.

**AP1: HVDC energy availability**

The AP1 HVDC availability measure is the average energy availability of the HVDC Poles 2 and 3. The measure is based on the maximum amount of energy the HVDC link can transfer at full loading for a full year, less the reduction in energy transfer caused by de-rating the pole for equipment outages\(^\text{14}\).

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\(^1\) A transmission constraint is a local limitation in the transmission capacity of the grid.  

\(^2\) System losses are the difference between the energy injected into the grid by generators and the energy delivered to final customers.  

\(^3\) The HVDC link does not operate at full transfer often. However, there are times when it is critical to maximise the transfer capacity of the link (e.g., extreme hydrological situations in the South Island). The future evolution of the HVDC measure may focus on the actual market effects of de-rating link capacity due to particular equipment outages occurring at a certain time.
**AP2: HVAC availability (selected circuits)**

The HVAC availability measure is the percentage of time that a selected set of 220 kV circuits is available during a year. We have selected circuits based on the potential effect that outages would have on security constraints or system losses (or both)\(^{15}\). The selected circuits are listed below, and presented in a map at the end of this chapter.

<table>
<thead>
<tr>
<th>South Island</th>
<th>North Island</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clyde–Cromwell–Twizel 1 and 2</td>
<td>Ohakuri–Wairakei 1</td>
</tr>
<tr>
<td>Manapouri–North Makarewa 1,2 and 3</td>
<td>Te Mihi–Whakamaru 1</td>
</tr>
<tr>
<td>North Makarewa–Tiwi 1 and 2</td>
<td>Bunnythorpe–Tokaanu 1 and 2</td>
</tr>
<tr>
<td>Clyde–Roxburgh 1 and 2</td>
<td>Rangipo–Tangiwi 1</td>
</tr>
<tr>
<td>Ashburton–Timaru–Twizel 1 and 2</td>
<td>Atiamuri–Whakamaru 1</td>
</tr>
<tr>
<td>Invercargill–Manapouri 2</td>
<td>Te Mihi–Wairakei 1</td>
</tr>
<tr>
<td>Tekapo B–Twizel 1</td>
<td>Pakuranga–Whakamaru 1 and 2</td>
</tr>
<tr>
<td>Islington–Tekapo B 1</td>
<td></td>
</tr>
<tr>
<td>Ohau B–Twizel 3</td>
<td></td>
</tr>
<tr>
<td>Ohau C–Twizel 4</td>
<td></td>
</tr>
<tr>
<td>Ashburton–Islington 1</td>
<td></td>
</tr>
<tr>
<td>Islington–Livingstone 1</td>
<td></td>
</tr>
</tbody>
</table>

### 3.3.2. AVAILABILITY TARGETS

Our approach to setting targets for both AP1 and AP2 is to assume 100 per cent availability, with adjustments for approved construction outages, efficient preventive maintenance outages and unplanned outages.\(^{16}\) The availability targets for RCP2 are the same as our long-term targets.

<table>
<thead>
<tr>
<th>Category</th>
<th>Historic performance</th>
<th>RCP2 target</th>
<th>Long term target</th>
</tr>
</thead>
<tbody>
<tr>
<td>HVDC (energy)</td>
<td>97.3</td>
<td>98.5</td>
<td>98.5</td>
</tr>
<tr>
<td>Key HVAC circuits</td>
<td>99.0</td>
<td>99.6</td>
<td>99.6</td>
</tr>
</tbody>
</table>

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\(^{15}\) Our approach to selecting these circuits is covered in more detail in Appendix B of the Service Performance Measures report.

\(^{16}\) The approach to setting the availability targets is described in Appendix A of our Service Performance Measures report.
3.4. **MAP**

The following diagram shows the categorisation of our points-of-service, and the location of the HVDC link and the circuits selected for our HVAC availability measure.

Figure 3: Map of points-of-service, HVDC link and selected HVAC circuits
4. HOW WE USE THE TARGETS

This chapter:

- summarises the role of service measures and targets in our business
- describes our current practices and development plans.

4.1. THE ROLE OF SERVICE MEASURES AND TARGETS

At a high level, we use service measures and targets as follows:

- To discuss our services with customers. The measures should reflect what is important to customers. Having clear measures helps support discussions with our customers, including commercial and operational negotiations.

- As a critical input into asset management decisions. Asset management interventions should be directed towards meeting our service targets. Having clear measures helps align and prioritise our efforts.

- To shape our expenditure plans. Having clear service targets helps us to drive towards the least-cost means of meeting service expectations.

4.2. CURRENT PRACTICES AND DEVELOPMENT PLANS

As described above, we have developed a new services framework that includes the three services most relevant to price-quality path regulation and we are beginning to use this framework in conversations with our customers.

Our services framework is central to the Initiatives Plan we published in June 2015, which sets out how we intend to approach planning for our next regulatory period (RCP3, starting 1 July 2020). The next significant milestone in this process will be development of an engagement paper for publication in September 2015.

The engagement paper will advance our thinking on incorporating VoLL into our target-setting process, using improved information to calibrate restoration targets, developing appropriate measures for event communications and improving the measures we use for grid availability. We will also advance our thinking on how ‘fitness for service’ fits within our price-quality path regulatory framework.

We used point-of-service categories when preparing our 2013 ITP to help prioritise our work. Since completing the 2013 ITP we have been using service categories to map criticality scores against individual assets. For some asset types the criticality score uses services categories in conjunction with a safety score. This is helping to more systematically incorporate criticality into our risk assessment and prioritisation processes.

We are also in the process of implementing a new process-based grid operating model, with a redeveloped ‘decision function’ designed to improve how effectively we prioritise and scope work across disparate assets and activities. We are using our service measures as part of this work.

17 In practice, interventions are also directed towards other objectives, such as worker and public safety.
The service measures are becoming an increasingly important part of our operations. We used the reliability targets as part of our recent renegotiation of service provider contracts, and are factoring the reliability and availability targets into our works planning processes.

Since 2014 we have been using the new service targets for internal performance reporting. This process is helping to embed the measures within our business. From July 2015 the new service targets are embedded in our Statement of Corporate Intent and internal measures of success. We will be reporting on the measures in our quarterly NZX operational performance disclosures.