

Decision on Transpower's normalisation application for an outage of the Islington-Roxburgh A line

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This paper sets out our decision to approve Transpower’s normalisation application

- 1 This paper sets out our decision to approve Transpower New Zealand Limited’s (Transpower) application (Application)¹ to treat an outage on the Islington-Roxburgh A line (ISL-ROX) between 24 August and 28 August 2020 (August 2020 outage) as a ‘normalisation event’ under the *Transpower Individual Price-Quality Path Determination 2020* [2019] NZCC 19 (IPP).²
- 2 We also set out in this paper the reasons for our decision as well as the calculations in relation to Transpower’s quality measures as a result of that decision.

What is a normalisation event?

- 3 The IPP sets quality standards for Transpower which comprise grid performance measures and asset performance measures.
- 4 Clause 20 of the IPP allows Transpower to apply to us to ‘normalise’ an interruption or outage that meets certain criteria and relates to particular asset performance measures and grid performance measures under the IPP. Our policy intent is that the relevant quality standards should not apply to such interruptions or outages that are beyond Transpower’s reasonable control, in circumstances where Transpower exercised good electricity industry practice (GEIP).³
- 5 If we approve an application for normalisation under the IPP’s criteria, this allows Transpower to exclude the impact of the normalised outage or interruption from the application of the relevant quality standard under the IPP.⁴ Treating an outage or interruption as a normalisation event also affects the outcome of the performance incentives applicable to Transpower.

Transpower seeks our approval to normalise the August 2020 outage

- 6 Transpower’s basis for the Application is that the August 2020 outage was a direct result of a severe weather event on 7 December 2019.⁵

¹ Transpower “Normalisation Application under clause 20.3 of the Transpower Individual Price-Quality Path Determination 2020 (IPP 2020) (Application) 10 March 2021, available at: <https://comcom.govt.nz/regulated-industries/electricity-lines/electricity-transmission/transpowers-price-quality-path/setting-transpowers-price-quality-path-from-2020>.

² Commerce Commission, IPP, available at <https://comcom.govt.nz/regulated-industries/electricity-lines/electricity-transmission/transpowers-price-quality-path/setting-transpowers-price-quality-path-from-2020>.

³ Commerce Commission, “Transpower’s individual price-quality path from 1 April 2020 Draft decisions and reasons paper”, (IPP reasons paper), 29 May 2019, at [X39.6], available at: https://comcom.govt.nz/_data/assets/pdf_file/0032/149837/Transpowers-individual-price-quality-path-from-1-April-2020-Draft-decisions-and-reasons-paper-29-May-2019.pdf.

⁴ IPP reasons paper, above n 3, at [F344].

⁵ Application, above n 1, at [2-4].

- 7 On 7 December 2019, extreme rainfall caused severe flooding of the Rangitata River. The flooding significantly damaged nine transmission towers on the ISL-ROX line. Eight of the damaged towers had to be repaired, and one tower (**Tower 771**) had to be replaced, before the ISL-ROX line could be returned to full service.
- 8 The flood damage to the transmission towers caused an initial outage that interrupted electricity supply from the date of the flooding to 27 March 2020 (**initial outage**), when Transpower returned the ISL-ROX line into service at reduced capacity using temporary bypass structures (**temporary structures**). The temporary structures allowed Transpower to remove from service and repair the damaged towers while keeping the ISL-ROX line operational, but at a reduced capacity.
- 9 After repairing the damaged towers and replacing Tower 771 with a new tower (**Tower 771A**), Transpower restored the ISL-ROX line to full capacity on 28 August 2020. This required swapping over the line's conductors that were on the temporary bypass to the permanent structures.
- 10 This restoration process required a planned outage to the ISL-ROX line of 103.27 hours (6196 mins) from 24 August to 28 August 2020. This outage affects Transpower's HVAC circuit availability asset performance measure under clause 18 of the IPP (**AP2**) and is the subject of the Application.⁶

Our decision is to approve the Application

- 11 Having evaluated the Application and supporting document against the requirements for normalisation set out in clause 20.2.1 to 20.2.4 of the IPP, our decision is to approve treating the August 2020 outage as a normalisation event.
- 12 Our decision enables Transpower to exclude the 6196 minutes from this outage from the application of AP2.
- 13 While Transpower has erected the replacement Tower 771A with enhanced design, we have asked Transpower to consider investigating further to establish the root cause of the failure of Tower 771 and reassess the risk profile of towers in flood prone areas. This would allow Transpower to confirm that the design of Tower 771A is appropriate and make any refinements to the tower design and maintenance standards. Transpower has advised that the root cause failure analysis of Tower 771 is scheduled in June 2021.⁷

⁶ Under clause 18.1 of the IPP, the AP2 quality standard for a disclosure year applies to the HVAC assets listed in Schedule G. Schedule G does not list the ISL-ROX line, because the HVAC assets listed in Schedule G are *circuits* rather than the individual lines making up the circuits. The ISL-ROX line is a part of the Islington-Livingston 1 circuit (**ISL-LIV 1 circuit**), which is listed in Schedule G.

⁷ Transpower, Appendix 1 - Commerce Commission request for additional information (**Appendix 1**), at [3c].

The IPP framework and criteria for normalisation

- 14 Clause 20.2 of the IPP defines a ‘normalisation event’ as an interruption or outage that:
- 14.1 was beyond Transpower’s reasonable control;
 - 14.2 Transpower did not cause, or materially contribute to, by any failure to exercise good electricity industry practice (**GEIP**);
 - 14.3 had a duration of 24 hours or more, in circumstances where that duration was:
 - a) beyond Transpower’s reasonable control; and
 - b) not caused, or materially contributed to, by any failure of Transpower to exercise GEIP; and
 - 14.4 was the result of:
 - a) natural disaster;
 - b) fire not caused by Transpower equipment failure;
 - c) explosion not caused by Transpower equipment failure;
 - d) civil commotion;
 - e) a terrorist act;
 - f) malicious damage;
 - g) war (declared or undeclared);
 - h) revolution;
 - i) contamination;
 - j) action or inaction by a court or government agency (including denial, refusal or failure to grant any authorisation, despite timely best endeavour to obtain an authorisation);
 - k) a work stoppage.⁸
 - (l) a dispute between an employer and employees;
 - (m) work bans; or
 - (n) acts or omissions (other than failure to pay money) of a third party that affect the ability of Transpower to prevent or minimise the interruption or outage.
- 15 Clause 20.3 of the IPP requires Transpower to make a written application to us for each interruption or outage in the disclosure year that Transpower considers is a normalisation event. The application must:
- 15.1 be made no later than 42 working days after the end of the disclosure year;

⁸ IPP, above n 2, at cl 20.2.

- 15.2 include the reasons why Transpower considers the normalisation event has occurred and why Transpower considers:
 - 15.2.1 the outage was beyond Transpower's control;
 - 15.2.2 the effect of the outage on the grid, including managing to a shorter duration than that which actually occurred, was beyond Transpower's reasonable control; and
 - 15.2.3 it exercised GEIP in relation to the cause and effects of the interruption or outage;
 - 15.3 include supporting evidence for the reasons provided in accordance with clause 20.3.2, including, without limitation, information on the relevant design standards of any Transpower equipment involved in the interruption or outage;
 - 15.4 include proposed reassessed values of any calculations of measures of grid performance⁹ or calculations of measures of asset performance measures¹⁰ that are relevant to Transpower's written application, reassessed as if the interruption or outage was excluded from those measures in accordance with clause 20.1; and
 - 15.5 include any other information that Transpower considers is relevant to its application.¹¹
- 16 Clause 20.4 of the IPP requires us to decide whether each interruption or outage that is the subject of that written application is a normalisation event, using the criteria in clauses 20.2.1-20.2.4 and:
- 16.1 publish our decision on our website, which describes:
 - a) any interruption or outage that we have decided is a normalisation event;
 - b) reasons for why we have reached that decision, based on the criteria in clause 20.2.1-20.2.4; and
 - c) what calculations of measures of grid performance or calculations of asset performance measures we have decided are affected as a result of (a); and
 - 16.2 advise our decision to Transpower.

⁹ IPP, above n 2, at cls 14.6-14.11, 16.6-16.11 and 19.3.1-19.3.2 set out the approach to calculating grid performance measures.

¹⁰ Above n 2, at cls 17.2-17.3, 18.2, 19.3.3-19.3.4 and 19.4 set out the approach to calculating asset performance measures.

¹¹ At cl 20.3.

Our evaluation of the August 2020 outage against the IPP's criteria for normalisation

- 17 Applying the criteria under clause 20.2.1-20.2.4 of the IPP, we evaluated the Application by considering:
- 17.1 whether the August 2020 outage:
 - 17.1.1 was the result of an event listed under clause 20.2.4 of the IPP;
 - 17.1.2 was beyond the reasonable control of Transpower; and
 - 17.1.3 was not caused, or materially contributed to, by any failure of Transpower to exercise GEIP;
 - 17.2 whether the duration of the normalisation outage was:
 - 17.2.1 at least 24 hours;
 - 17.2.2 beyond Transpower's reasonable control; and
 - 17.2.3 not caused, or materially contributed to, by any failure of Transpower to exercise GEIP;
 - 17.3 whether Transpower made the Application no later than 42 working days after the end of the 2021 disclosure year (30 June 2021).
- 18 We set out our evaluation as follows. Our evaluation starts by assessing whether the August 2020 outage was the result of a natural disaster, because the analysis for that assessment underpins and overlaps with our analysis of the IPP's other criteria. The sequence of our evaluation otherwise follows the order of the IPP criteria.

The August 2020 outage was the result of a natural disaster

- 19 Transpower contends that for the purpose of clause 20.2.4 of the IPP, the August 2020 outage was the result of a natural disaster: the Rangitata River flooding on 7 December 2019.
- 20 Transpower identifies the following facts in support of this:¹²
- 20.1 On 7 December 2019, flooding of the Rangitata River following a severe weather event (natural disaster) damaged nine transmission towers on the ISL-ROX line;
 - 20.2 Of the nine towers, one of the towers was unrecoverable (Tower 771) while the remaining eight suffered major structural damage;
 - 20.3 Transpower had to reinstate the line into service in steps, as follows:

¹² Application, above n 1, at [2-8].

- 20.3.1 Transpower constructed a temporary pole line section parallel to the damaged towers as an interim solution and returned the ROX-ISL line to service at a reduced capacity on 27 March 2020. This step improved the security of supply to the Upper South Island region;
 - 20.3.2 Transpower was then able to isolate and repair the damaged towers and replace the unrecoverable tower;
 - 20.3.3 Transpower swapped over the temporary pole line to the permanent structures which required an outage of 103.27 hours (6196 mins), from 24 August 2020. This outage is the subject of this normalisation application since it was a result of a natural disaster; and
 - 20.3.4 on 28 August 2020, Transpower returned to service the ISL-ROX line after the new permanent structures were completed.
- 21 The IPP’s definition of ‘natural disaster’ includes a flood.¹³ The IPP does not define the term ‘flood’. The right reference point for whether and in what circumstances a river’s flow constitutes a flood is therefore a matter to be considered on a case-by-case basis.
- 22 In this case, a useful reference point is Environment Canterbury’s rating of the Rangitata River’s flood protection scheme, which is designed to withstand current of up to 1500 cumecs.¹⁴ Transpower states that the flooding of the Rangitata River involved floodwaters over 35 times the river’s usual current, with flow peaking at 2300 cumecs on 7 December 2019.¹⁵ This peak flow substantially exceeds the river’s flood protection scheme rating. The floodwaters also caused the river to breakout from its usual channel and spill its banks in several locations – State Highway 79, State Highway One, the Rangitata Village, and Arundel township.¹⁶
- 23 We therefore agree with Transpower’s view that the event on 7 December 2019 was a flood and was accordingly a natural disaster for the purpose of the IPP’s definition. The question is therefore whether the August 2020 outage was the result of the flood.

¹³ IPP, above n 2, at cl 7.

¹⁴ Environment Canterbury, “Rangitata River – why did it flood and what happens now?”, 10 February 2020, available at: <https://www.ecan.govt.nz/get-involved/news-and-events/2019/rangitata-river-why-did-it-flood-and-what-happens-now/>.

¹⁵ Application, above n 1, at [3].

¹⁶ Environment Canterbury, above n 14.

- 24 While the August 2020 outage occurred close to nine months after the Rangitata River flooding on 7 December 2019, we are satisfied that the August 2020 outage was the result of that flood for the following reasons.
- 25 As outlined above, the flood damaged nine transmission towers – one irreparably, and eight with major structural damage – which caused the initial outage. Transpower worked to commission the temporary structures, enabling restoration of the ISL-ROX line at a reduced capacity on 27 March 2020.¹⁷ The temporary structures were not intended to be a long-term solution, so Transpower planned and executed the 2020 August event to relocate the ISL-ROX line from the temporary structures to the permanent structures.
- 26 In terms of causation, the initial outage was the result of damage from the flooding on 7 December 2019. The temporary structures provided a partial, short-term solution, but the damaged transmission towers had to be repaired (and replaced in the case of the unrepairable Tower 771) before Transpower could restore the full capacity of the ISL-ROX line with permanent structures.
- 27 Transpower could not have relocated the ISL-ROX line from the temporary structures to the permanent structures without a planned outage. Provided Transpower’s use of the temporary structures as a partial, short-term measure was justifiable, then the August 2020 outage needed to relocate the ISL-ROX line could reasonably be described as the result of the 7 December 2019 flood.
- 28 We consider Transpower’s use of the temporary structures as a partial, short-term measure was justifiable because, had Transpower waited on restoring the ISL-ROX line until the permanent structures were repaired, the initial outage would have continued up until that point.¹⁸ Repair would likely not have been completed until months after Transpower commissioned the temporary structures that ended the initial outage by restoring reduced supply.
- 29 On the need for restoring the ISL-ROX line, Transpower noted that:¹⁹

“Leaving the ISL-LIV-1 circuit out of service until permanent structures could be installed and commissioned was deemed unacceptable by the System Operator due to reduced level of security to the Upper South Island.”

¹⁷ Transpower did not apply to have the initial outage treated as a normalisation event because the normalisation regime only came into effect with the IPP on 1 April 2020. There was no such regime or equivalent provisions prior to that point.

¹⁸ If the initial outage had continued beyond 1 April 2020, Transpower could have applied to have that part of the outage (from 1 April 2020 onwards) treated as a normalisation event.

¹⁹ Application, above n 1, at pg. 7.

- 30 In these circumstances, we consider Transpower's action to restore service of the ISL-ROX line via the temporary structures was justifiable and reflected the actions of a responsible operator exercising GEIP. In particular, restoring partial service via the temporary structures in a shorter timeframe provided a greater level of security to the system operator for the upper South Island in winter than what would have been available had Transpower delayed restoration to do a full repair.
- 31 The August 2020 outage that was needed to relocate the ISL-ROX line can therefore be described as the result of the 7 December 2019 flood because it was a necessary step in moving from temporary to permanent structures. We consider this aligns with the intent of the IPP for normalisation, being to exclude from the quality measures the impact of events that were beyond Transpower's reasonable control in circumstances where Transpower exercised GEIP.²⁰

The August 2020 outage was beyond Transpower's reasonable control

- 32 Given our conclusion above that the August 2020 outage was the result of the flood on 7 December 2019, we are satisfied the August 2020 outage was beyond Transpower's control.

Transpower did not cause, or materially contribute to, the August 2020 outage by any failure to exercise GEIP

- 33 Transpower states that the damage started with Tower 771 (unrecoverable tower) which was anchored in the river and was swept away by the flood. This increased the tension on the neighbouring towers, causing three towers to collapse and damaging five others.
- 34 There are three key aspects of GEIP to consider in this context:
- 34.1 Transpower's construction of transmission towers in the Rangitata River (ie, on the **river braid bar**);
 - 34.2 Transpower's maintenance of the towers; and
 - 34.3 Transpower's use of the temporary structures as a partial, short-term measure to restore supply on the ISL-ROX line, given this subsequently required the August 2020 outage to relocate the line to permanent structures.
- 35 We asked Transpower to comment on these aspects and have summarised Transpower's response below.

²⁰ IPP reasons paper, above n 3, at [X39.6].

Construction of transmission towers on the river braid bar

- 36 Since the old Tower 771 was 63 years old,²¹ we did not assess whether constructing it on the river braid bar reflected GEIP. We instead asked Transpower whether it had considered erecting the replacement Tower 771A in a place other than the river.
- 37 Transpower advised that it had considered not re-erecting the tower within the river but decided not to pursue this option. Cost was a key consideration in this decision, along with other site-specific factors.²²
- 38 Transpower had advised that it has erected the replacement Tower 771A with an enhanced foundation design to ensure additional resilience. Transpower also noted that in its view, reinstalling the tower within the river braid bar may at times be the only option, given the width of the river, and is not necessarily inconsistent with GEIP:

Our design standards meet Good Electricity Industry Practice (GEIP). Following GEIP should involve looking at all options and determining which one provides the best value for our customers. Having a structure in a riverbed may be the best option if the risk of damage is deemed acceptable, which it was in this case.²³

The question of whether we would erect towers in riverbeds would form part of a specific design and delivery business case that considers a number of variables. Our view is that if the tower location meets our design standards... and is cost effective to manage this risk, then it is reasonable to expect that a tower be erected similar to Tower 771A. That is within a section of a braided river that can be morphologically active in high flows but is surrounded by material.²⁴

- 39 Transpower is confident that the new tower will resist future flooding events, stating:²⁵

“Transpower is confident that the scenarios used in the design process ensured that the foundation will have appropriate capacity to resist future flooding events.” The following load cases were analysed:

Co-incident with 300-year return period wind loads:

- 1 in 20-year flood (AS5100.2 debris accumulation included)
- 1 in 20-year flood (2000kg log impact)
- 1 in 20-year flood (floating debris mat 5-6m² per pile)

Co-incident with 4-year return period wind loads:

- 1 in 100-year flood with 3m scour (governing loading case, AS5100.2 debris accumulation included)

²¹ Application, above n 1, at [6].

²² Appendix 1, above n 7, at [3c].

²³ Appendix 1, above n 7, at [3].

²⁴ Appendix 1, above n 7, at [4].

²⁵ Appendix 1, above n 7, at [3].

- 1 in 100-year flood with 3m scour (2000kg log impact)
- 1 in 100-year flood with 3m scour (floating debris mat 5-6m² per pile).

- 40 Transpower advised that its root cause failure analysis of Tower T0771 is scheduled for June 2021.²⁶ We consider that this analysis will be important as it will allow Transpower to:
- 40.1 ascertain that the enhanced design of Tower 771A is adequate;
 - 40.2 allow Transpower reassess and re-establish the risks of other towers in flood prone areas; and
 - 40.3 make any consequential amendments to Transpower's transmission line tower design and maintenance standards.
- 41 In the case of any future potential normalisation events of this sort, taking the above steps would also provide assurance that:
- 41.1 Transpower had reasonable assessed such high-impact, low-probability exposures; and
 - 41.2 the relevant event occurred despite reasonable efforts to minimise its likelihood and impact.

Maintenance of towers on river braid bars

- 42 In the Application, Transpower advised that it assessed the condition of the foundation of Tower A0771 as high. Transpower wrote:²⁷
- We exercised GEIP in relation to the maintenance of our structures along the ROX-ISL A {ISL-ROX} Line. Tower A0771's foundations were assessed two years prior to the flood and had a condition score of 81-90 for each leg of the tower. This is a good condition. A new structure would score 100, while below 20 would indicate a significant loss in strength. The structure's age was 63 years. The other towers that were pulled down or damaged by the flooding were in similar (good) condition. The condition of the towers is inspected every eight years in accordance with our grid maintenance policies and procedures.
- As a result, we do not consider that we caused or materially contributed to the collapse of tower A0771 and the consequent damage to the surrounding towers.
- 43 We asked Transpower to provide further details on its assessment and on the accuracy of assessments of towers erected in such areas. Transpower commented that:²⁸

²⁶ Appendix 1, above n 7, [5].

²⁷ Application, above n 1, at [6].

²⁸ Appendix 1, above n 7, at [4].

In terms of our maintenance policies and procedures, our Condition Assessment (CA) activities and Standard Maintenance Procedures are set out in our Service Specifications. (TP.SS 02.98 page 53). This confirms our maintenance interval requirements and a required accuracy of +/- 10%.

In 2017, the foundation leg condition codes for Tower 771 were CA 90, and the foundation connection condition codes varied with one leg coded CA 50, and three legs coded CA 80 – with a comment that there was “rust on base plates”. On the basis of the condition codes, the physical foundation was in a good condition with no issues at the time of assessment. We are comfortable that the condition codes were accurate at the time of assessment and will have correctly represented the condition of the foundation.

Additionally, any defects supplementary to the CA codes would be identified by one of our service providers through routine patrols that are recorded in our Maximo system. Any defects would prompt an intervention under our Predictive Maintenance workstream.

And further:²⁹

Our Service Specifications and Maintenance Companion Guide confirm that as part of the CA process, assessment of the physical foundation is the same for any tower foundation. Visual assessment guidelines are used to identify any degradation or damage.

There is also a requirement to record any defect that may impact on the tower foundation to perform as designed (i.e. whether it is fit for purpose).

Further to this, every tower visited under the annual routine patrols programme assesses the tower and foundation to ascertain if there are any defects that pose, or could pose, a threat to the safe operational status of the asset. After weather or seismic events, a Special Purpose Patrol is undertaken on the transmission line as well which checks for earth movement or scouring/erosion.

- 44 We are satisfied from Transpower’s response that it exercised GEIP in its maintenance of the affected towers.

Use of temporary structures as a partial, short-term measure to restore supply

- 45 Our analysis and conclusion in paragraphs 27 to 31 above is that, in the circumstances outlined in the section above, Transpower exercised GEIP in using the temporary structures as a partial, short-term measure to restore supply, even though doing so necessitated the August 2020 outage.
- 46 Overall, we conclude that the failure of Tower A0771 and subsequent outages of the ISL-ROX line were not due to Transpower failing to exercise GEIP in the three key aspects explored above.

The duration of the August 2020 outage was more than 24 hours

- 47 The duration of this August 2020 outage was 103.27 hours (or 4.3 days), substantially exceeding the threshold under clause 20.2.3 of the IPP of 24 hours or more.

²⁹ Appendix 1, above n 7, at [5].

The duration of the August 2020 outage was beyond Transpower’s reasonable control, and was not caused, or materially contributed to, by any failure of Transpower to exercise GEIP

- 48 We evaluate the two criteria under clause 20.2.3(a) and (b) of the IPP together in this section because our analysis of them with respect to the August 2020 outage overlaps and draws on some of our analysis of the other criteria above.
- 49 As noted in paragraph 25 above, Transpower planned and executed the August 2020 outage, so it is arguable the event and its duration were within Transpower’s reasonable control. However, for the reasons summarised in paragraphs 27 to 31, we are satisfied that the August 2020 outage was:
- 49.1 the result of the 7 December 2020 flood, and was beyond Transpower’s reasonable control; and
- 49.2 not caused, or materially contributed to, by any failure of Transpower to exercise GEIP.
- 50 This above conclusions are relevant to our evaluation here of the two criteria under clause 20.2.3(a) and (b), because, if the August 2020 outage’s duration reflected the time reasonably required to relocate the ISL-ROX line from the temporary to the repaired permanent structures, we consider the event’s duration was:
- 50.1 beyond Transpower’s reasonable control; and
- 50.2 not caused, or materially contributed to, by any failure of Transpower to exercise GEIP.
- 51 In response to our question on why the August 2020 outage required an outage of 4.3 days, Transpower advised that the following work had to be done during the outage:³⁰
- 51.1 three days were required for trans-positioning the three phases of sub-conductors. This was completed as planned, targeting one phase per day due to the shorter daylight hours in August. Each phase had two sub-conductors;
- 51.2 the two wiring spans (Tower 765A-766 and Tower 774A-775) for connecting the 3km section of new line were simultaneously worked on by two separate crews;
- 51.3 each crew had to maintain the existing conductor tensions from Tower 765A-775, while also maintaining the new conductor tensions from Tower 766-774A. This required engineered controls to sequentially manage loads to the temporary poles and permanent tower structures;

³⁰ Appendix 1, above n 7, at [1].

- 51.4 the above controls included step processes and hold points for construction activities;
- 51.5 the trans-positioning necessitated each conductor's tension to be held and lowered for new sub-conductors to be raised, brought up to pre-tension, sagged and terminated. This occurred for each phase; and
- 51.6 the fourth and final day involved installing spacers, removing temporary earths, completing pre-commissioning inspection and function checks before commissioning the line.
- 52 We consider that the amount of work outlined above justifies the 4.3-day duration of the August 2020 outage, and reflects the time reasonably required to relocate the ISL-ROX line from the temporary to the repaired permanent structures.
- 53 We also consider Transpower exercised GEIP in planning and executing this work during the August 2020 outage, and that the event's duration was not caused, or materially contributed to, by any failure of Transpower to exercise GEIP.

Transpower made the Application within the IPP's specified timeframe

- 54 The 2021 disclosure year ended on 30 Jun 2021. Transpower made the Application on 10 March 2021, which was well within the timeframe of no later than 42 working days after the end of the 2021 disclosure year.

We conclude the August 2020 outage meets the IPP's criteria for a normalisation event

- 55 Based on our evaluation above, we conclude the August 2020 outage meets the criteria under clause 20.2.1-20.2.4 of the IPP for a normalisation event.

The impact of the normalisation event on AP2

- 56 Clause 20.4.1(c) of the IPP requires us to include in our decision what calculations of AP2 we have decided are affected our conclusion that the August 2020 outage is a normalisation event.
- 57 The settings for AP2 are as follows:

Components of the AP2	Values
Cap	99.2%
Target	99.0%
Collar	98.8%
Incentive rate	\$5m per percentage

58 HVAC Availability in percentage is calculated as:³¹

$$\frac{(100 - 100 * (\text{total duration of all outages of selected HVAC assets})}{(\text{Number of selected HVAC assets}) (\text{total hours in the disclosure year})}$$

59 Transpower has assessed that the August 2020 outage affects AP2 by 0.2%, using the above formulae. This will reduce Transpower's grid output incentive by \$0.1m. This is only a fraction of the cost of repairing the flood-damaged towers which Transpower estimated to be substantially larger.

60 As we have yet to receive final numbers for the disclosure year, we are unable to determine at this point the impact of this outage on Transpower's overall incentive.

³¹ IPP, above n 2, at cl 18.