

## Section VII Preparation of Outage Protocol

### 1. Purpose of this section

The purpose of this section VII is to provide for the making of an **Outage Protocol**, with input from **Transpower** and in consultation with other interested parties, that:

- 1.1 specifies the circumstances in which **Transpower** may temporarily remove any **assets** forming part of the **grid** from service or reduce the capacity of assets to efficiently manage the operation of the **grid**;
- 1.2 specifies procedures and policies for **Transpower** to plan for **outages** and for carrying out such **outages** to:
  - 1.2.1 ensure **Transpower** involves **designated transmission customers** in making decisions on **planned outages** as much as possible;
  - 1.2.2 ensure coordination between **Transpower** and **designated transmission customers**; and
  - 1.2.3 enable **Transpower** to efficiently manage the operation of the **grid**; and
- 1.3 specifies the procedures and policies for dealing with **unplanned outages** of the **grid**.

### 2. Definition of outage

- 2.1 An **outage** exists when **interconnection assets** or **connection assets** are temporarily not provided in accordance with:
  - 2.1.1 the requirements of a **transmission agreement**; or
  - 2.1.2 the requirements of section VI.
- 2.2 Without limiting rule 2.1, an **outage** includes any situation where:
  - 2.2.1 **Transpower** removes **assets** from service temporarily;
  - 2.2.2 **assets** are not able to be provided due to **grid emergencies**, in order to deal with health and safety issues, or due to circumstances beyond **Transpower's** reasonable control;
  - 2.2.3 **Transpower** reduces the capacity of **branches** below the capacity required by a **transmission agreement** or rule 3 of section VI;
  - 2.2.4 **Transpower** changes the configuration of the **grid**; or
  - 2.2.5 **Transpower** is required by law to carry out an **outage**.

### 3. Principles for developing Outage Protocol

The **Outage Protocol** must give effect to the following principles:

- 3.1 the matters in rule 1;
- 3.2 the need for a fair and reasonable balance of interests between the **grid owner** and **designated transmission customers**;
- 3.3 the need to ensure that the **grid owner** can meet all obligations placed on it by the **system operator** for the purpose of meeting common security and power quality requirements under part C of the **rules**;
- 3.4 the need to ensure that the safety of all personnel is maintained;
- 3.5 the need to ensure that the safety and integrity of equipment is maintained; and
- 3.6 the desirability of the **Outage Protocol** and part C operating in an integrated and consistent manner, where possible.

#### 4. Required content of Outage Protocol

- 4.1 The **Outage Protocol** must:
  - 4.1.1 require **Transpower** to plan for **outages**, other than **outages** that are not reasonably foreseeable, in accordance with rule 5.1;
  - 4.1.2 require **Transpower** and **designated transmission customers** to act reasonably and in good faith in planning for **outages**, in accordance with rule 5.2;
  - 4.1.3 set out the situations and times at which **Transpower** must reconsider the timing of proposed **planned outages**, as specified in rule 5.3;
  - 4.1.4 permit **Transpower** to vary a proposed **planned outage**, as specified in rule 5.4;
  - 4.1.5 set out the requirements for **Transpower** to consider when planning for **outages**, in order to give effect to the net benefit principle, as specified in rule 5.5;
  - 4.1.6 permit **Transpower** to undertake **outages** in order to give effect to a **reliability investment** or an **economic investment**, and to undertake **outages** that are required by the **Act**, as specified in rule 5.7; and
  - 4.1.7 permit **Transpower** to undertake **outages**, or take such other steps, as the **system operator** may reasonably require.
- 4.2 The **Outage Protocol** must require **Transpower** to set out the procedures and policies for dealing with **unplanned outages**, as specified in rule 6.
- 4.3 The **Outage Protocol** must require **Transpower** to report on compliance with the **Outage Protocol**, in accordance with rule 7.
- 4.4 The **Outage Protocol** must set out:

- 4.4.1 transitional arrangements for **Transpower** to deal with **outages** that it has already planned for at the date that the **Outage Protocol** comes into force;
  - 4.4.2 processes for **Transpower** to consult with **designated transmission customers** and to determine an **outage plan** setting out **planned outages** for each **year**, and processes for the **outage plan** to be updated;
  - 4.4.3 requirements on **Transpower** to keep **designated transmission customers** informed about **planned outages**, including minimum notice periods for **Transpower** to advise affected **designated transmission customers** of **planned outages** not set out in the **outage plan**;
  - 4.4.4 procedures for **outage** co-ordination by **Transpower** and between **Transpower** and **designated transmission customers**; and
  - 4.4.5 requirements on **Transpower** to provide information to **designated transmission customers** about **unplanned outages**.
- 4.5 The **Outage Protocol** is not limited to the matters referred to in this rule 4, and may provide for any other matters related to **outages**.

## 5. Required content of Outage Protocol in respect of planning for outages

### 5.1 Planning for outages

The **Outage Protocol** must require **Transpower** to plan for **outages**, other than **outages** that are not reasonably foreseeable:

- 5.1.1 in respect of **interconnection assets**, in accordance with the requirements of the **Outage Protocol** specified under rule 5.5.1;
- 5.1.2 in respect of **connection assets**, by agreeing with each affected **designated transmission customer** on the timing and duration of the **outage** or, failing agreement, in accordance with the requirements of the **Outage Protocol** specified under rule 5.5.1; and
- 5.1.3 in respect of outages of both **interconnection assets** and **connection assets** that are required in order to give effect to a **reliability investment** or an **economic investment** approved by the **Board** under section III of this part or are required by the **Act**, in accordance with the requirements of the **Outage Protocol** specified under rule 5.7.

### 5.2 Transpower and designated transmission customers to act reasonably and in good faith

- 5.2.1 The **Outage Protocol** must require **Transpower**, in planning for **outages** in accordance with rules 5.1, 5.5 and 5.7, reconsidering the timing of proposed **planned outages** in accordance with rule 5.3 or varying proposed **planned outages** in accordance with rule 5.4, to act reasonably and in good faith, taking into account the information reasonably known at the time or that can be reasonably forecast.

- 5.2.2 The **Outage Protocol** must require **designated transmission customers**, in exercising rights or undertaking obligations under the **Outage Protocol**, to act reasonably and in good faith.

### 5.3 Reconsideration of planned outages

The **Outage Protocol** must set out the situations and the times at which **Transpower** must reconsider the timing of proposed **planned outages**, and the extent to which the proposed timing of **planned outages** needs to be reconsidered, which may include:

- 5.3.1 whenever material new information has been provided to **Transpower** about the likely effect of a proposed **planned outage**; and
- 5.3.2 whenever circumstances relating to a proposed **planned outage** have changed sufficiently to justify reconsideration of the requirements specified under rules 5.5 or 5.7, and **Transpower** is aware or has been made aware of the change in circumstances.

### 5.4 Variations to planned outages

- 5.4.1 The **Outage Protocol** may permit **Transpower** to vary a proposed **planned outage** only where:
- 5.4.1.1 in respect of a proposed **planned outage** of **interconnection assets**, the variation of the proposed **planned outage** is permitted in accordance with the requirements of the **Outage Protocol** specified under rules 5.5 or 5.7;
- 5.4.1.2 in respect of a proposed **planned outage** of **connection assets**, **Transpower** and each affected **designated transmission customer** agree on the variation as provided for in the **Outage Protocol** or, failing agreement, the variation of the proposed **planned outage** is permitted in accordance with the requirements of the **Outage Protocol** specified under rules 5.5 or 5.7;
- 5.4.1.3 the variation is necessary as a result of a **grid emergency**, in order to deal with health and safety issues, in order to comply with the **Act** or due to other circumstances beyond **Transpower's** reasonable control; or
- 5.4.1.4 the variation is required to meet a request of the **system operator** that **Transpower** vary a proposed **planned outage**.
- 5.4.2 The **Outage Protocol** must require **Transpower**, where possible, to give notice of a variation prior to the proposed **planned outage**, and if prior notice is not possible, to advise of the variation to the proposed **planned outage** as soon as possible after the variation occurs.

### 5.5 Net benefit principle, requirements and methodologies

- 5.5.1 The requirements of the **Outage Protocol** relating to planning for **outages** under rules 5.1.1 or 5.1.2, or for varying proposed **planned outages** under rules 5.4.1.1 or 5.4.1.2:
- 5.5.1.1 must give effect to the net benefit principle specified in rule 5.5.2, in determining the timing and duration of a **planned outage**, and whether to undertake a **planned outage**, either by including the particular requirements set out in rule 5.6.2, or by some other means;
  - 5.5.1.2 may include methodologies and processes for **Transpower** to apply when planning for **outages**; and
  - 5.5.1.3 may include other requirements that may apply in different situations.
- 5.5.2 The net benefit principle is that, in planning and varying a **planned outage**, **Transpower** must ensure that the **planned outage** is likely to result in net benefits to persons who produce, transmit, distribute, retail or consume **electricity**:
- 5.5.2.1 in respect of **interconnection assets**, to the extent those persons are affected by an **outage**; and
  - 5.5.2.2 in respect of **connection assets** where **Transpower** has not agreed the timing and duration of the **outage** with the relevant **designated transmission customer** in accordance with the **Outage Protocol**, to the extent those persons are affected by an **outage**.

## 5.6 Consideration of the likely effects of planned outages

- 5.6.1 The **Outage Protocol** may require **Transpower** to determine the likely effect of a proposed **planned outage** on the power system, **generators** and **consumers**, and:
- 5.6.1.1 where a proposed **outage** is not reasonably expected to:
    - (a) result in the power system failing to meet the **grid reliability standards**; and/or
    - (b) give rise to **binding constraints**; and/or
    - (c) result in loss of supply to **consumers**,may permit **Transpower** to undertake the **outage**; and
  - 5.6.1.2 where a proposed **outage** is likely to result in, or give rise to, the matters referred to in rule 5.6.1.1, the **Outage Protocol** may require **Transpower** to comply with the particular requirements specified in rule 5.6.2.
- 5.6.2 The particular requirements referred to in rule 5.6.1 that the **Outage Protocol** may provide are:

5.6.2.1 where a proposed **planned outage** is likely to result in the power system failing to meet the **grid reliability standards**, but is not expected to give rise to **binding constraints** or result in loss of supply to **consumers**, **Transpower** must:

- (a) estimate the following costs:
  - (1) the direct labour and material costs that **Transpower** will incur in undertaking the **outage**;
  - (2) the direct labour and material costs that **designated transmission customers** will incur as a result of **Transpower** undertaking the **outage**;
  - (3) the extent of any increase in the **expected unserved energy** arising from any increased risk that the **outage** may result in loss of **supply**;
  - (4) any relevant matter specified in clauses 27.1 to 27.9 of Schedule F4 of section III, where the matter referred to in those clauses is a cost to any person who produces, transmits, retails or consumes **electricity** in New Zealand; and
  - (5) any other cost, considered relevant to a proposed **outage** subject to this rule 5.6.2.1, to any person who produces, transmits, retails or consumes **electricity** in New Zealand;
- (b) estimate the following benefits:
  - (1) the extent of any reduction in the **expected unserved energy** arising from any reduction in the risk that future **outages** may result in loss of **supply**;
  - (2) any reduction in maintenance costs resulting from the **outage** (including **Transpower's** and any **designated transmission customer's** costs);
  - (3) any relevant matter specified in clauses 27.1 to 27.9 of Schedule F4 of section III, where the matter referred to in those clauses is a benefit to any person who produces, transmits, retails or consumes **electricity** in New Zealand; and
  - (4) any other benefit, considered relevant to a proposed **outage** subject to this rule 5.6.2.1, to any person who produces, transmits, retails or consumes **electricity** in New Zealand; and

- (c) carry out the **outage** only if the costs estimated under rule 5.6.2.1(a) are less than the benefits estimated under rule 5.6.2.1(b);

5.6.2.2 where a proposed **planned outage** is likely to give rise to **binding constraints**, whether or not the **outage** is also likely to result in a loss of supply to **consumers**, **Transpower** must:

- (a) estimate the following costs:
  - (1) the direct labour and material costs that **Transpower** will incur in undertaking the **outage**;
  - (2) the direct labour and material costs that **designated transmission customers** will incur as a result of **Transpower** undertaking the **outage**;
  - (3) the extent of any increase in the **expected unserved energy** arising from any increased risk that the **outage** may result in loss of **supply**;
  - (4) any additional fuel costs incurred by any **generators** in respect of any **generating units** that will be **dispatched** or are likely to be **dispatched** during or after the **outage** and as a result of the **outage**;
  - (5) any relevant matter specified in clauses 27.1 to 27.9 of Schedule F4 of section III, where the matter referred to in those clauses is a cost to any person who produces, transmits, retails or consumes **electricity** in New Zealand; and
  - (6) any other cost, considered relevant to a proposed **outage** subject to this clause 5.6.2.2, to any person who produces, transmits, retails or consumes **electricity** in New Zealand;
- (b) estimate the following benefits:
  - (1) any reduction in maintenance costs resulting from the **outage** (including **Transpower's** and any **designated transmission customer's** costs);
  - (2) any reduction in fuel costs incurred by any **generators** in respect of any **generating units**, arising or likely to arise during or after the **outage** and as a result of the **outage**;

- (3) any relevant matter specified in clauses 27.1 to 27.9 of Schedule F4 of section III, where the matter referred to in those clauses is a benefit to any person who produces, transmits, retails or consumes **electricity** in New Zealand; and
  - (4) any other benefit, considered relevant to a proposed **outage** subject to this clause 5.6.2.2, to any person who produces, transmits, retails or consumes **electricity** in New Zealand; and
- (c) carry out the **outage** only if the costs estimated under rule 5.6.2.2(a) are less than the benefits estimated under rule 5.6.2.2(b); and

5.6.2.3 where a proposed **planned outage** is likely to lead to loss of **supply to consumers**, whether or not the **outage** is also likely to give rise to **binding constraints**, **Transpower** must:

- (a) estimate the following costs:
- (1) the direct labour and material costs that will be incurred by **Transpower** undertaking the **outage**;
  - (2) the direct labour and material costs that **designated transmission customers** will incur as a result of **Transpower** undertaking the **outage**;
  - (3) the extent of any increase in the **expected unserved energy** arising from the loss of **supply** during the **outage**;
  - (4) any relevant matter specified in clauses 27.1 to 27.9 of Schedule F4 of section III, where the matter referred to in those clauses is a cost to any person who produces, transmits, retails or consumes **electricity** in New Zealand; and
  - (5) any other cost, considered relevant to a proposed **outage** subject to this clause 5.6.2.3, to any person who produces, transmits, retails or consumes **electricity** in New Zealand;
- (b) estimate the following benefits:
- (1) any reduction in maintenance costs resulting from the **outage** (including **Transpower's** and any **designated transmission customer's** costs);

- (2) the extent of any decrease in the **expected unserved energy** arising from the **outage**;
  - (3) any reduction in fuel costs incurred by any **generators** in respect of any **generating units**, arising or likely to arise during or after the **outage** and as a result of the **outage**;
  - (4) any matter specified in clauses 27.1 to 27.9 of Schedule F4 of section III, where the matter referred to in those clauses is a benefit to any person who produces, transmits, retails or consumes **electricity** in New Zealand; and
  - (5) any other benefit, considered relevant to a proposed **outage** subject to this clause 5.6.2.3, to any person who produces, transmits, retails or consumes **electricity** in New Zealand; and
- (c) carry out the **outage** only if the costs estimated under rule 5.6.2.3(a) are less than the benefits estimated under rule 5.6.2.3(b).

5.6.3 In providing for the matters referred to in rule 5.6.2, the **Outage Protocol** must include the following requirements:

5.6.3.1 The fuel costs referred to in rules 5.6.2.2 and 5.6.2.3 must:

- (a) in the case of thermal **generating stations**, be based on the fuel costs specified in the **statement of opportunities**; or
- (b) in the case of hydroelectric **generating stations**:
  - (1) be a reasonable estimate of the fuel costs, based on the economic value of the water stored at a hydroelectric **generating station**, provided by a suitably qualified person other than:
    - (A) **Transpower**; or
    - (B) an employee of **Transpower**; and
  - (2) be published, as provided for in the **Outage Protocol**.

5.6.3.2 The direct labour costs referred to in rules 5.6.2.1 to 5.6.2.3 must include any amounts paid to contractors, but must not include any apportionment of overheads or office costs of **Transpower** or a **designated transmission customer**.

- 5.6.3.3 The material costs referred to in rules 5.6.2.1 to 5.6.2.3 must be the costs of the materials used in carrying out the work during the **outage**.
- 5.6.3.4 The estimation of **expected unserved energy** under rules 5.6.2.1 to 5.6.2.3 must:
- (a) in the case of **connection assets**, be based on:
    - (1) the estimated actual amount and value of **expected unserved energy** as agreed between **Transpower** and each affected **designated transmission customer**; or
    - (2) if **Transpower** and a **designated transmission customer** cannot agree on the amount and value of **expected unserved energy** under sub-clause (1), the value of unserved energy that applies under clauses 8.3.4 and 8.4.3 of Schedule F4 of section III, and **Transpower's** estimate of the amount of **expected unserved energy** in respect of each affected **designated transmission customer** and end use customer; and
  - (b) in the case of **interconnection assets**, be based on:
    - (1) the value of unserved energy that applies under clauses 8.3.4 and 8.4.3 of Schedule F4 of section III; and
    - (2) **Transpower's** reasonable estimate of the amount of **expected unserved energy** for each affected **designated transmission customer** and end use customer.
- 5.6.4 In addition to the requirements in rule 5.6.3, the **Outage Protocol** must require **Transpower** in planning for **outages** to consider any reasonably expected operating conditions, the forecasts in the **system security forecast**, likely fuel costs, and any other reasonable assumptions.
- 5.6.5 The **Outage Protocol** must include a methodology for determining **expected unserved energy** for the purposes of rules 5.6.2.1 to 5.6.2.3 that complies with rules 5.6.3.4 and 5.6.4.
- 5.6.6 The **Outage Protocol** may permit **Transpower** to:
- 5.6.6.1 make only a reasonable estimate of the matters specified in rules 5.6.2 to 5.6.4 based on information reasonably available to it at the time it considers whether to carry out a **planned outage**, and taking into account the number of **assets** to which the proposed **outage** applies, the value of

the **assets** involved, the size of the load served by the **assets**, the proposed duration of the **outage**; and

- 5.6.6.2 apply differing levels of rigour in different circumstances, which may include taking into account the number of **assets** to which a proposed **outage** applies, the value of the **assets** involved, the size of the load served by the **assets**, the proposed duration of the **outage**, and any other relevant matters.

## 5.7 **Planned outages required in order to give effect to a reliability investment or an economic investment, or required by the Act**

- 5.7.1 The **Outage Protocol** must set out requirements for **Transpower** to consider when determining the timing of **planned outages** that are required in order to give effect to a **reliability investment** or an **economic investment** approved by the **Board** under section III, or that are required by the **Act**.

- 5.7.2 The requirements specified under rule 5.7.1 must require **Transpower** to give effect to the net benefit principle in rule 5.5.2 in determining the timing and duration of **outages** subject to this rule, and may require **Transpower** to consider some or all of the costs and benefits specified in rule 5.6.

## 6. **Required content of Outage Protocol in relation to unplanned outages**

- 6.1 The Outage Protocol must:

- 6.1.1 set out procedures and policies for dealing with **unplanned outages**, when and if they occur, so as to minimise the costs and, if relevant, maximise the benefits arising from an **unplanned outage**;
- 6.1.2 set out the reasonable steps and measures that **Transpower** must take in order to be prepared for **unplanned outages**, so as to ensure that it is readily able to deal with **unplanned outages** in a way that minimises the costs and, if relevant, maximises the benefits arising from an **unplanned outage**;
- 6.1.3 require **Transpower** to deal with **unplanned outages** as quickly as reasonably possible, in accordance with the procedures specified in the **Outage Protocol**.

- 6.2 The costs and benefits under rule 6.1 are the costs and benefits of the **outage** to persons who produce, transmit, distribute, retail, or consume **electricity**.

## 7. **Reporting on compliance with Outage Protocol**

The **Outage Protocol** must require **Transpower** to publish and report to **designated transmission customers** and the **Board**, whether in the report provided under rule 9 of section VI or otherwise, on its compliance with the requirements of the **Outage Protocol**, including the requirements specified in rule 5.5.1 for giving effect to the net benefit principle specified in rule 5.5.2 and the requirements of the **Outage Protocol** relating to **unplanned outages** specified in rule 6.

## 8. Transpower to submit proposed Outage Protocol

- 8.1 **Transpower** must submit a proposed **Outage Protocol** to the **Board** within 3 months (or such longer period as the **Board** may allow) of receipt of a written request from the **Board**. The **Board** may issue such a request at any time. The proposed **Outage Protocol** must give effect to or promote the principles set out in rule 3 and provide for the matters set out in rules 4, 5, 6 and 7.
- 8.2 With its proposed **Outage Protocol**, **Transpower** must submit to the **Board** an explanation of the proposed **Outage Protocol** and a statement of proposal for the proposed **Outage Protocol**, prepared as if the **Board** were recommending the **Outage Protocol**, as proposed by **Transpower**, to the **Minister** in accordance with section 172F of the **Act**.

## 9. Board may initially approve the proposed Outage Protocol or refer back to Transpower

After consideration of **Transpower's** proposed **Outage Protocol** and accompanying explanation and statement of proposal, the **Board** may either:

- 9.1 provisionally approve the proposed **Outage Protocol** having regard to the principles in rule 3 and the matters set out in rules 4, 5, 6 and 7; or
- 9.2 refer the proposed **Outage Protocol** and accompanying explanation and statement of proposal back to **Transpower**, if in the **Board's** view:
- 9.2.1 the proposed **Outage Protocol** does not adequately give effect to or promote the principles in rule 3;
  - 9.2.2 the proposed **Outage Protocol** does not adequately provide for the matters set out in rules 4, 5, 6 and 7; or
  - 9.2.3 the explanation or statement of proposal provided with the **Outage Protocol** in accordance with rule 8.2 is not adequate,

and **Transpower** must, within 20 **business days** (or such longer period as the **Board** may allow), consider the **Board's** concerns and resubmit its proposed **Outage Protocol** and accompanying explanation and statement of proposal for reconsideration by the **Board**.

## 10. Reconsideration of revised Outage Protocol by the Board

After reconsideration of **Transpower's** proposed **Outage Protocol**, and accompanying explanation and statement of proposal, as revised under rule 9.2, the **Board** may either:

- 10.1 provisionally approve the proposed **Outage Protocol**, as revised, having regard to the principles in rule 3 and the matters set out in rules 4, 5, 6 and 7; or
- 10.2 if the **Board** considers that the **Outage Protocol** resubmitted by **Transpower** under rule 9.2 does not adequately give effect to or promote the principles in rule 3, or adequately provide for the matters set out in rules 4, 5, 6 and 7, the **Board** may make any amendments to the proposed **Outage Protocol**, as revised, that it considers necessary.

**11. Board must consult on the proposed Outage Protocol**

The **Board** must **publish** the proposed **Outage Protocol**, either as provisionally approved by the **Board** or as amended by the **Board**, as soon as is practicable, for consultation with any person that the **Board** thinks is likely to be materially affected by the proposed **Outage Protocol**.

**12. Board may undertake additional consultation**

As well as the consultation required under rule 11, the **Board** may undertake any other consultation it considers necessary.

**13. Board to make recommendations to Minister**

When the **Board** has completed its consultation on the proposed **Outage Protocol**, it must make recommendations to the **Minister** for inclusion of the **Outage Protocol** as a schedule to this section.

**14. Review of Outage Protocol**

The Board may review the **Outage Protocol** at any time, in accordance with the requirements of rules 8 to 13.

**15. Compliance with Outage Protocol**

15.1 **Transpower** and **designated transmission customers** must comply with the **Outage Protocol**, unless agreed otherwise by **Transpower** and a **designated transmission customer** in respect of specified **assets** or the **designated transmission customer** in accordance with rule 15.2.

15.2 Any agreement between **Transpower** and a **designated transmission customer** that the **Outage Protocol** does not apply in respect of specified **assets** may not exclude the application of rule 9.1.8 of section VI and must be conditional in all respects on:

15.2.1 obtaining agreement from all other potentially affected **designated transmission customers** that the **Outage Protocol** does not apply in respect of the specified **assets** or the **designated transmission customer**; and

15.2.2 **Transpower** and the **designated transmission customer** satisfying the **Board** that they have consulted with all potentially affected end use customers on the **Outage Protocol** not applying in respect of the specified **assets** or the **designated transmission customer** and that there are no material unresolved issues affecting the interests of those end use customers.

15.3 **Transpower** must notify the **Board** as soon as practicable in the event that **Transpower** enters into an agreement with a **designated transmission customer** in respect of specified **assets** in accordance with rule 15.1.