

Outage Protocol: Explanatory note

This is the version of the outage protocol (previously in section VII of part F of the Electricity Governance Rules 2003) that the Authority is required to publish by clause 12.131(2) of the Electricity Industry Participation Code 2010 (Code).

Clause 12.131(1) of the Code continues the outage protocol in force and deems it to be the protocol that applies at the commencement of the Code. It also requires that some words, phrases, and provisions of the Rules be read as different words, phrases, or provisions of the Code. Specifically:

- references to the Board must be read as references to the Authority:
- references to the Rules must be read as references to the Code:
- references to the Regulations must be read as references to the Code:
- references to the provisions of the Rules or the Regulations must be read as references to the corresponding provisions of the Code:
- references to a reliability investment or an economic investment approved by the Board must be read as references to an approved investment:
- references to the benchmark agreement in schedule F2 of the Rules must be read as references to the benchmark agreement incorporated by reference under the Code:
- references to the value of unserved energy in schedule F4 of the Rules must be read as references to the value of expected unserved energy in clause 4 of schedule 12.2 of the Code:
- references to the matters specified in clauses 27.1 to 27.9 of schedule F4 must be read as the matters specified in clause 12.43(1)(a)(iv) and (b)(iv) of the Code:
- references to fuel costs specified in the statement of opportunities must be read as references to fuel costs calculated in accordance with clause 12.411(3)(a)(i).

Those words, phrases, and provisions of the Code are shown in square brackets to assist readers.

Schedule F7 Outage Protocol

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1. Preliminary

- 1.1 This is the **Outage Protocol** required to be prepared by section VII of part F [*Subpart 7 of Part 12 of the Code*].
- 1.2 For the purpose of this **Outage Protocol**, references to **Transpower** are references to **Transpower** as the **grid owner**.

2. General

2.1 Definitions

- 2.1.1 In this **Outage Protocol**, unless the context otherwise requires,—

affected designated transmission customer means a **designated transmission customer** that has **assets** physically connected to the **connection assets**, or to any part of a group of **connection assets** used to connect the **designated transmission customer**, which are the subject of a **planned outage**, a **connection asset variation**, or an **unplanned outage**

connection asset variation means a **planned outage** of **connection assets** added to the **outage plan** after the **outage plan** is **published** under clause 3.3.2, or a variation of the timing or duration of a **planned outage** of **connection assets**, or the removal of a **planned outage** of **connection assets** from the **outage plan**

force majeure event has the meaning given to it by clause 2.2.1(a)

interconnection asset variation means a **planned outage** of **interconnection assets** added to the **outage plan** after the **outage plan** is **published** under clause 3.3.2, or a variation of the timing or duration of a **planned outage** of **interconnection assets**, or the removal of a **planned outage** of **interconnection assets** from the **outage plan**

interested participant means a **participant** who has given **Transpower** notice pursuant to clause 2.4 that it wishes to be registered in respect of specified **interconnection assets**

invoking entity has the meaning given to it by clause 2.2.1(b)

net benefit principle means the net benefit principle specified in rule 5.5.2 of section VII of part F [*clause 12.140(2) of the Code*]

net benefit test means the net benefit test specified in Part 2 of Appendix A

outage plan year means the year to which an **outage plan** relates, being a year commencing on 1 July in one calendar year and ending at midnight on 30 June in the following calendar year

regional forum means a meeting organised by **Transpower**, held in each of Auckland, Wellington and Christchurch, to which **participants** are invited pursuant to clause 3.2.4(d).

2.2 Relief from obligations because of a force majeure event

2.2.1 In this clause 2.2—

- (a) **force majeure event** means any event or circumstance beyond the reasonable control of the **invoking entity** that occurs despite the exercise of reasonable care by the **invoking entity**, and the effects of which could not have been reasonably avoided by the **invoking entity**; and
- (b) **invoking entity** means the party (being either **Transpower**, a **designated transmission customer**, or a **participant**) who seeks to rely on clause 2.2.2.

2.2.2 The **invoking entity** is relieved of an obligation under this **Outage Protocol** to the extent that, and for so long as, it is unable to perform that obligation as a result of a **force majeure event**.

2.2.3 However, clause 2.2.2—

- (a) only applies if, and for so long as, the **invoking entity** carries out the obligations in clauses 2.2.4, 2.2.5, 2.2.6, and 2.2.8; and
- (b) does not apply to the obligation in clause 3.1.2(a).

- 2.2.4 If **Transpower**, a **designated transmission customer**, or a **participant** becomes aware of a serious prospect of a forthcoming **force majeure event**, it must provide notice to the **Board [Authority]** and the relevant party listed in clause 2.2.6, providing as much of the information required by clause 2.2.5(a) to (c) as reasonably possible.
- 2.2.5 In addition to any notice given under clause 2.2.4, if **Transpower**, a **designated transmission customer**, or **participant** wishes to invoke clause 2.2.2, the **invoking entity** must, as soon as reasonably practicable, notify the **Board [Authority]** in writing of—
- (a) the full details of the **force majeure event**; and
 - (b) the obligation that cannot be performed; and
 - (c) the likely duration of the **invoking entity's** inability to perform the obligation.
- 2.2.6 If the **invoking entity** is a **designated transmission customer** or a **participant**, the **invoking entity** must also provide to **Transpower** written notice of the details in clause 2.2.5(a) to (c) at the same time that it notifies the **Board [Authority]**. If the **invoking entity** is **Transpower** and the **force majeure event** relates to **connection assets**, **Transpower** must also provide written notice of the details in clause 2.2.5(a) to (c) to each **designated transmission customer** that has **assets** physically connected to the relevant **connection assets** at the same time that **Transpower** notifies the **Board [Authority]**.
- 2.2.7 **Transpower** must as soon as reasonably practicable after giving notice under clauses 2.2.4 or 2.2.5 (where **Transpower** is the **invoking party**) or receiving a notice under clauses 2.2.4 or 2.2.6 (where a **designated transmission customer** or a **participant** is the **invoking party**) **publish** the notice given or received (as the case may be).
- 2.2.8 The **invoking entity** must use all reasonable endeavours to overcome the inability to perform the obligation and to remove or mitigate the effect of the **force majeure event**.

- 2.3 Relationship of Outage Protocol to transmission agreements and sections II and VI of part F [*Subparts 2 and 6 of Part 12 of the Code*]
- 2.3.1 Subject to clause 11.2, **Transpower** is not required to meet its obligations under clause 36.1(a) of a default **transmission agreement** entered into in accordance with rule 3.1.3.1 of section II of part F [*clause 12.10(1) of the Code*], or to comply with rules 3.1.1 or 3.2 of section VI of part F [*clauses 12.111(a) or 12.111(b) of the Code*], if it is permitted to undertake a **planned outage** or **unplanned outage** under this **Outage Protocol**.
- 2.4 Registration as an interested participant
- 2.4.1 Subject to clauses 2.4.3 and 2.4.4, any **participant** may register as an **interested participant** at any time by providing **Transpower** with a written notice—
- (a) stating that the **participant** wishes to be registered by **Transpower** as an **interested participant** in relation to specified particular **interconnection assets** for the purposes of this **Outage Protocol**; and
 - (b) specifying the **interconnection assets** in relation to which the **participant** wishes to be registered.
- 2.4.2 The **participant** is deemed to be registered as an **interested participant** 2 **business days** from the date that the notice under clause 2.4.1 is received by **Transpower**.
- 2.4.3 If a **participant** wishes to be consulted under clauses 3.2.4(a) and 3.2.4(b) in relation to the development of the initial **outage plan** for an upcoming **outage plan year**, the **participant** must notify **Transpower** in accordance with clause 2.4.1 of its interest in the particular **interconnection assets** on or before the end of February.
- 2.4.4 If a **participant** wishes to be consulted in relation to an **interconnection asset variation** under clauses 5.2.3(e) or 7.4.1(e), that **participant** must be registered as an **interested participant** at the time that **Transpower** publishes a notice relating to the **interconnection asset variation** under clauses 5.2.3(d) or 7.4.1(d).

2.4.5 **Transpower** is not required to consult with an **interested participant** under clauses 3.2.4(a), 3.2.4(b), 5.2.3(e), or 7.4.1(e) unless the **interested participant** is registered in accordance with clauses 2.4.3 or 2.4.4.

3. Preparation of outage plan

3.1 Content of outage plan

3.1.1 The **outage plan** for an **outage plan year** must be developed as provided in clause 3.2, contain the matters set out in clause 3.1.2, and may be varied as specified in clauses 4, 5 and 7.

3.1.2 The **outage plan** must—

- (a) include all reasonably foreseeable **outages** in the **outage plan year**; and
- (b) include **connection asset variations** as determined in accordance with clauses 4 and 7; and
- (c) include **interconnection asset** variations as determined in accordance with clauses 5 and 7; and
- (d) include **planned 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 investment*], or are required by the **Act** as determined by clause 3.3.8; and
- (e) enable **Transpower** to meet all obligations placed on it by the **system operator** for the purpose of meeting common security and power quality requirements under part C [*Part 8 of the Code*].

3.2 Development of outage plan

3.2.1 In undertaking the development of the **outage plan** for an **outage plan year** in accordance with this clause 3.2, **Transpower**, each **designated transmission customer**, and each **participant** must act reasonably and in good faith, taking into account the information reasonably known at the time or that can be reasonably forecast.

3.2.2 Each **designated transmission customer** must, on or before 30 November in each year, provide to **Transpower** in writing its own plan, in respect of the next **outage plan year**, for **planned outages** for its own **assets** that are likely to

materially affect **Transpower's** management and operation of **connection assets** and **interconnection assets**.

3.2.3 On or before 31 January in each year, **Transpower** must **publish** a proposed **outage plan** for the next **outage plan year**.

3.2.4 On or before 31 March in each year:

- (a) **Transpower** must consult with each **interested participant** that provided a notice in accordance with clause 2.4.3 in respect of any **planned outages** of the **interconnection assets** specified in the notice; and
- (b) **Transpower** must provide an opportunity for each **interested participant** that provided a notice in accordance with clause 2.4.3 to meet with **Transpower** for the purposes of discussing the proposed **planned outages** of the **interconnection assets** that are specified in the notice; and
- (c) if an **interested participant** believes (acting reasonably) that any proposed **planned outage** of **interconnection assets** may not meet the **net benefit principle** and should not therefore be undertaken, the **interested participant** may notify **Transpower** and provide to **Transpower** a brief statement in writing of the reasons for the **interested participant** belief that the proposed **planned outage** of **interconnection assets** does not, or may not, result in net benefits to persons who produce, transmit, distribute, retail or consume **electricity**, in which case clause 3.3.4 will apply; and
- (d) **Transpower** must provide an opportunity for each **affected designated transmission customer** to meet with **Transpower** for the purposes of discussing and attempting to agree on, in accordance with clause 3.3.5, the proposed **planned outages** of **connection assets** to which that **affected designated transmission customer** has **assets** physically connected; and
- (d) **Transpower** must conduct **regional forums** open to **participants** at which **Transpower** must present the proposed **outage plan** for the purpose of enabling those **participants** who attend to comment and make representations.

3.3 Determination of outage plan

3.3.1 In determining the **outage plan**, **Transpower** must act reasonably and in good faith, taking into account the information reasonably known at the time or that can be reasonably forecast.

3.3.2 After 1 March in any year, **Transpower** must determine the content of the **outage plan** for the next **outage plan year** and must use all reasonable endeavours to **publish** the **outage plan** on or before 19 May in that year (being 6 weeks prior to the commencement of the **outage plan year**).

3.3.3 In determining the content of the **outage plan**, **Transpower** must act in accordance with the remaining provisions of this clause 3.3.

3.3.4 In respect of **planned outages** of **interconnection assets**:

- (a) **Transpower** must have regard to the discussions undertaken with **interested participants** as provided in clause 3.2; and
 - (b) if an **interested participant** with whom **Transpower** has consulted under clause 3.2.4 has identified under clause 3.2.4(c) that any proposed **planned outage** of **interconnection assets** may not meet the **net benefit principle**, and **Transpower** wishes to include the proposed **planned outage** in the **outage plan**, **Transpower** must—
 - (i) carry out the **net benefit test** in order to determine whether to include the proposed **planned outage** in the **outage plan**, provided that the proposed **planned outage** is reasonably expected to:
 - (1) result in the power system failing to meet **grid reliability standards**; and/or
 - (2) give rise to **binding constraints**; and/or
 - (3) result in loss of supply to **consumers**; and
 - (ii) if the result of the **net benefit test** is positive, or the proposed **planned outage** of **interconnection assets** is not reasonably expected to—
 - (1) result in the power system failing to meet **grid reliability standards**; and/or
 - (2) give rise to **binding constraints**; and/or
 - (3) result in loss of supply to **consumers**,
- then **Transpower** may include the proposed **planned outage** of **interconnection assets** in the **outage plan**.

- 3.3.5 In respect of **planned outages of connection assets**, the **planned outages** specified in the **outage plan** must be:
- (a) as agreed with each relevant **affected designated transmission customer**; or
 - (b) failing agreement and subject to clause 3.3.6, determined by **Transpower** taking into account the **net benefit principle**; or
 - (c) include **planned outages** of both **interconnection assets** and **connection assets** that are required in order to give effect to a **reliability investment** or an **economic investment** [*an approved investment*], or are required by the **Act**;
- 3.3.6 If Transpower determines that a **planned outage** should occur in accordance with clause 3.3.5(b)—
- (a) **Transpower** must notify each relevant **affected designated transmission customer**; and
 - (b) if, after being notified by **Transpower**, an **affected designated transmission customer** believes (acting reasonably) that the proposed **planned outage** may not meet the **net benefit principle** and should not therefore be undertaken, the **affected designated transmission customer** may notify **Transpower** and provide to **Transpower** a brief statement in writing of the reasons why the **affected designated transmission customer** believes that the proposed **planned outage of connection assets** does not, or may not, result in net benefits to persons who produce, transmit, distribute, retail or consume **electricity**, in which case clause 3.3.7 will apply.
- 3.3.7 If an **affected designated transmission customer** has given notice under clause 3.3.6(b) and **Transpower** wishes to include the proposed **planned outage** in the **outage plan**, **Transpower** must-
- (a) carry out the **net benefit test** in order to determine whether to include the proposed **planned outage** in the **outage plan**, provided that the proposed **planned outage** is reasonably expected to:
 - (i) result in the power system failing to meet **grid reliability standards**; and/or
 - (ii) give rise to **binding constraints**; and/or
 - (iii) result in loss of supply to **consumers**; and
 - (b) if—
 - (i) the result of the **net benefit test** is positive; or
 - (ii) the proposed **planned outage of connection assets** is not reasonably expected to—

- (1) result in the power system failing to meet **grid reliability standards**; and/or
- (2) give rise to **binding constraints**; and/or
- (3) result in loss of supply to **consumers**,—

then **Transpower** may include the proposed **planned outage** of **connection assets** in the **outage plan**.

3.3.8 In respect of **planned outages** of **interconnection assets** and **connection assets** that—

- (a) are required in order to give effect to a **reliability investment** or an **economic investment** approved by the **Board** under section III of part F [*an approved investment*]; or
- (b) are required by the **Act**,—

Transpower must give effect to the **net benefit principle** in determining the timing and duration of the **planned outage**.

4. Designated transmission customer initiated connection asset variations

4.1 Introduction

4.1.1 This clause 4 sets out the process for **Transpower** to make **connection asset variations** to the **outage plan** in response to a request from a **designated transmission customer**.

4.1.2 In considering a **connection asset variation**, **Transpower** must act reasonably and in good faith, taking into account the information reasonably known at the time or that can be reasonably forecast.

4.1.3 In requesting a **connection asset variation**, **designated transmission customers** must act reasonably and in good faith.

4.2 Connection asset variations at request of affected designated transmission customers

4.2.1 **Transpower** and an **affected designated transmission customer** may agree on a **connection asset variation** of **connection assets** to which the **designated transmission customer** has **assets** physically connected, in accordance with the following procedure:

- (a) an **affected designated transmission customer** may, by notice in writing to **Transpower**, request a **connection asset variation**; and
- (b) the notice of any request by an **affected designated transmission customer** for a **connection asset variation** must be received by **Transpower** not less than 40 **business days** prior to—
 - (i) the earlier of:
 - (1) the planned commencement of the **planned outage** of **connection assets** which is the subject of the request; or
 - (2) the proposed commencement of the **connection asset variation** which is the subject of the request, if this is different from the commencement date under subclause (b)(i)(1); or
 - (ii) if the **connection asset variation** involves adding a new **planned outage** to the **outage plan**, the proposed commencement of that proposed **planned outage**; and

- (c) an **affected designated transmission customer's** notice of request must specify:
 - (i) the **connection assets** to which the notice relates; and
 - (ii) the reasons for the requested **connection asset variation**; and
 - (iii) the benefits associated with the **connection asset variation** identified by the **affected designated transmission customer**; and
 - (iv) the requested varied **outage** date (if relevant); and
 - (v) the requested varied **outage** start and finish times (if relevant); and
 - (vi) the requested varied **outage** duration (if relevant); and
- (d) as soon as reasonably practicable following receipt of the notice of request, and in any case no later than 5 **business days** following receipt of the notice, **Transpower** must **publish** the proposed **connection asset variation** and in such **publication** invite representations in writing within 7 **business days** of the **publication** from any other **affected designated transmission customer** which has **assets** physically connected to the relevant **connection assets**; and
- (e) as soon as reasonably practicable, **Transpower** must endeavour to agree on the **connection asset variation** with the **affected designated transmission customer** who gave notice under subclause (a) and each other **affected designated transmission customer** who made representations on the proposed **connection asset variation** in accordance with the invitation referred to in subclause (d). If agreement is reached, **Transpower** must **publish** the updated **outage plan**; and
- (f) if, after following the above procedures and making reasonable attempts to agree on the **connection asset variation**, **Transpower** and any **affected designated transmission customer**, who made a representation under subclause (d) or requested the **connection asset variation**, do not agree on the **connection asset variation**, the following provisions apply:
 - (i) **Transpower** must promptly notify each **affected designated transmission customer**, who made a representation under subclause (d) or requested the **connection asset variation**, of the **deadline** under subclause (f)(ii) for providing a notice requesting **Transpower** to apply the **net benefit principle** in accordance with Appendix A; and
 - (ii) if an **affected designated transmission customer** who made a representation under subclause (d) or requested the **connection asset variation** believes that **Transpower** should

make the **connection asset variation**, that **affected designated transmission customer** may provide written notice to **Transpower** requesting **Transpower** to apply the **net benefit principle** in accordance with Appendix A in order to determine whether the **connection asset variation** should be undertaken. The notice must be provided as soon as reasonably practicable, but in any event —

- (1) if **Transpower's** notice under subclause (f)(i) is received by the **affected designated transmission customer** less than 23 **business days** prior to the date that applies under subclause (b)(i) or (b)(ii), within 3 **business days** after receipt of **Transpower's** notice under subclause (f)(i); or
 - (2) in every other case, at least 20 **business days** prior to the date that applies under subclause (b)(i) or (b)(ii); and
- (iii) the **affected designated transmission customer's** notice under subclause (f)(ii) must briefly state the reasons for that **affected designated transmission customer's** belief that the **connection asset variation** does, or may, result in net benefits to persons who produce, transmit, distribute, retail or consume **electricity** and, therefore, why the **connection asset variation** should be made; and
 - (iv) following receipt of an **affected designated transmission customer's** notice under subclause (f)(ii), **Transpower** must apply the **net benefit principle** in accordance with clause A.1.1(b) of Appendix A.

4.3 Short notice connection asset variations at request of designated transmission customers

4.3.1 Notwithstanding clause 4.2, an **affected designated transmission customer** may request a short notice **connection asset variation** of **connection assets** to which that **affected designated transmission customer** has **assets** physically connected, in accordance with this clause 4.3, where—

- (a) the **affected designated transmission customer** has insufficient resources to carry out an **outage** of its **assets**; or
- (b) forecast adverse weather conditions prevent the **affected designated transmission customer** from undertaking an **outage** of its **assets**; or
- (c) it is necessary due to operating conditions on the **affected designated transmission customer's network**; or

- (d) maintenance, refurbishment, upgrade or replacement of the **affected designated transmission customer's assets** is required to be carried out at short notice; or
- (e) unforeseen planning circumstances arise which prevent the **affected designated transmission customer** from undertaking an outage of its **assets**; or
- (f) there is a delay in the delivery of equipment which prevents the **affected designated transmission customer** from undertaking an outage of its **assets**.

4.3.2 The notice of any request by an **affected designated transmission customer** for a short notice **connection asset variation** must be received by **Transpower** not less than 15 **business days** prior to—

- (a) the earlier of:
 - (i) the planned commencement of the **planned outage of connection assets** which is the subject of the request; or
 - (ii) the proposed commencement of the short notice **connection asset variation** which is the subject of the request; or
- (b) if the proposed short notice **connection asset variation** involves adding a new **planned outage** to the **outage plan**, the proposed commencement of that short notice **connection asset variation**.

4.3.3 An **affected designated transmission customer's** notice of request must specify the following:

- (a) the **connection assets** to which the notice relates; and
- (b) the reasons for the requested **connection asset variation**; and
- (c) the benefits associated with the **connection asset variation** identified by the **affected designated transmission customer**; and
- (d) the requested varied **outage** date (if relevant); and
- (e) the requested varied **outage** start and finish times (if relevant); and
- (f) the requested varied **outage** duration (if relevant).

4.3.4 **Transpower** must accept the request if, in **Transpower's** opinion—

- (a) the short notice **connection asset variation** requested will not materially adversely affect the conveyance of **electricity** to another **designated transmission customer** or its **assets**; and
- (b) **Transpower** has sufficient resources to carry out the requested short notice **connection asset variation**; and
- (c) the requested short notice **connection asset variation** will not conflict with any other **planned outage** or **unplanned outage**.

- 4.3.5 Where a short notice connection asset variation is made in accordance with this clause 4.3, **Transpower** must **publish** as much advance notice as is reasonably practicable of the short notice **connection asset variation**.

5. Interested participant initiated interconnection asset variations

5.1 Introduction

5.1.1 This clause 5 sets out the process for **Transpower** to make **interconnection asset variations** in response to a request from an **interested participant**.

5.2 Interconnection asset variations at request of interested participants

5.2.1 In considering an **interconnection asset variation**, **Transpower** must 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 In requesting an **interconnection asset variation**, **interested participants** must act reasonably and in good faith.

5.2.3 An **interested participant** may request an **interconnection asset variation** in accordance with the following procedure:

- (a) an **interested participant** may, by notice in writing to **Transpower**, request an **interconnection asset variation**; and
- (b) the notice of any request by the **interested participant** for an **interconnection asset variation** must be received by **Transpower** not less than 40 **business days** prior to:
 - (i) the earlier of:
 - (1) the planned commencement of the **planned outage** of **interconnection assets** which is the subject of the request; or
 - (2) the proposed commencement of the **interconnection asset variation** which is the subject of the request, if this is different from the commencement date under subclause (b)(i)(1); or
 - (ii) if the **interconnection asset variation** involves adding a new **planned outage** to the **outage plan**, the proposed commencement of that proposed **planned outage**; and

- (c) an **interested participant's** notice of request must specify the following:
 - (i) the **interconnection assets** to which the notice relates; and
 - (ii) the reasons for the requested **interconnection asset variation**; and
 - (iii) the benefits associated with the **interconnection asset variation** identified by the **interested participant**; and
 - (iv) the requested varied **outage** date (if relevant); and
 - (v) the requested varied in **outage** start and finish times (if relevant); and
 - (vi) the requested varied **outage** duration (if relevant); and
- (d) as soon as reasonably practicable following receipt of the notice of request, and in any case no later than 5 **business days** following receipt of the notice, **Transpower** must **publish** the proposed **interconnection asset variation** and in such **publication** invite representations from each **interested participant** within 7 **business days** of the **publication**; and
- (e) as soon as reasonably practicable, **Transpower** must consult on the proposed **interconnection asset variation** with each **interested participant** who made representations in accordance with the invitation referred to in subclause (d). If **Transpower** (taking into account such representations) decides—
 - (i) not to make the **interconnection asset variation**, then **Transpower** must advise each **interested participant** accordingly; or
 - (ii) to make the variation, then **Transpower** must **publish** the updated **outage plan**; and
- (f) if **Transpower** publishes an updated **outage plan** under subclause (e)(ii), but an **interested participant** consulted under subclause (e) believes (acting reasonably) that **Transpower** should not make the **interconnection asset variation** because the **interconnection asset variation** would not, or may not, give effect to the **net benefit principle**, the following provisions apply:
 - (i) the **interested participant** may request **Transpower** to apply the **net benefit principle** in accordance with Appendix A, in order to determine whether the **interconnection asset variation** should remain in the **outage plan**, by providing written notice to **Transpower** within 5 **business days** of the **publication** of the updated **outage plan** showing the **interconnection asset variation**; and

- (ii) the **interested participant's** notice under subclause (f)(i) must briefly state the reasons for that **interested participant's** belief that the **interconnection asset variation** does not, or may not, result in net benefits to persons who produce, transmit, distribute, retail or consume **electricity**, and, therefore, why the **interconnection asset variation** should not be made; and
- (iii) following receipt of an **interested participant's** notice under subclause (f)(ii), **Transpower** must apply the **net benefit principle** in accordance with clause A.1.1(b) of Appendix A.

6. Reconsideration of planned outages by Transpower

6.1 Reconsideration of planned outages by Transpower

6.1.1 **Transpower** must reconsider the timing and duration of **planned outages**, and the extent to which the proposed timing of **planned outages** needs to be reconsidered, if—

- (a) material new information is provided to **Transpower** in writing about the likely effect of a **planned outage**; or
- (b) there is a change in circumstances such that the **planned outage** will in **Transpower's** opinion (acting reasonably) materially adversely affect **Transpower's** management or operation of the **grid**; or
- (c) circumstances relating to a **planned outage** change sufficiently in **Transpower's** opinion (acting reasonably) to justify **Transpower** reapplying the **net benefit principle**.

6.1.2 In performing the obligation in clause 6.1.1, **Transpower** must act reasonably and in good faith, taking into account the information reasonably known at the time or that can be reasonably forecast.

6.1.3 If as a consequence of a reconsideration in accordance with clause 6.1.1, **Transpower** decides that a **connection asset variation** or an **interconnection asset variation** is necessary, **Transpower** may make the variation if permitted by clause 7.

7. Interconnection asset and connection asset variations by Transpower

7.1 General

7.1.1 This clause 7 sets out the process for **Transpower** to make **connection asset variations** and **interconnection asset variations** to the **outage plan** without the variation first being requested by an **affected designated transmission customer** or an **interested participant**.

7.1.2 When making or considering a **connection asset variation** or an **interconnection asset variation**, **Transpower** must act reasonably and in good faith, taking into account the information reasonably known at the time or that can be reasonably forecast.

7.1.3 In exercising their rights under this clause 7, **designated transmission customers** and **interested participants** must act reasonably and in good faith.

7.2 Connection asset variations by Transpower

7.2.1 **Transpower** and each **affected designated transmission customer** may agree on a **connection asset variation of connection assets** to which the **affected designated customer** has **assets** physically connected, in accordance with the following procedure:

(a) **Transpower** may, by notice in writing to each **affected designated transmission customer**, notify a proposed **connection asset variation**; and

(b) **Transpower's** notice of a proposed **connection asset variation** must be sent to each **affected designated transmission customer** not less than 40 **business days** prior to—

(i) the earlier of:

(1) the planned commencement of the **planned outage of connection assets** which is the subject of the notice; or

(2) the proposed commencement of the **connection asset variation** which is the subject of the notice, if this is different from the commencement date under subclause (b)(i)(1); or

(ii) if the **connection asset variation** involves adding a new

planned outage to the **outage plan**, the proposed commencement of that proposed **planned outage**; and

- (c) **Transpower's** notice must specify the following:
- (i) the **connection assets** to which the notice relates; and
 - (ii) the reasons for the requested **connection asset variation**; and
 - (iii) the benefits associated with the **connection asset variation** identified by **Transpower**; and
 - (iv) the requested varied **outage** date (if relevant); and
 - (v) the requested varied **outage** start and finish times (if relevant); and
 - (vi) the requested varied **outage** duration (if relevant); and
- (d) as soon as reasonably practicable following the notice and in any case no later than 5 **business days** following the notice, **Transpower** must **publish** the proposed **connection asset variation** and in such **publication** invite representations in writing within 7 **business days** of the **publication** from any other **affected designated transmission customer** who has **assets** physically connected to the relevant **connection assets**; and
- (e) as soon as reasonably practicable, **Transpower** must endeavour to reach agreement on the proposed **connection asset variation** with each **affected designated transmission customer** that made representations in accordance with the invitation referred to in subclause (d). If agreement is reached, **Transpower** must **publish** the updated **outage plan**; and
- (f) if, after following the above procedures and making reasonable attempts to agree on the **connection asset variation**, **Transpower** and any **affected designated transmission customer** who made a representation under subclause (d) do not agree on the **connection asset variation**, the following provisions apply:
- (i) **Transpower** must promptly notify each **affected designated transmission customer**, who made a representation under subclause (d), of the deadline under subclause (f)(ii) for providing a notice requesting **Transpower** to apply the **net benefit principle** in accordance with Appendix A; and
 - (ii) if an **affected designated transmission customer**, who made a representation under subclause (d), believes that **Transpower** should not make the **connection asset variation**, that **affected designated transmission customer** may provide written notice to **Transpower** requesting **Transpower** to apply the **net benefit principle** in accordance with Appendix A in order to determine whether the **connection**

asset variation should be undertaken. The notice must be provided as soon as reasonably practicable, and in any case:

- (1) if **Transpower's** notice under subclause (f)(i) is received by the **affected designated transmission customer** less than 23 **business days** prior to the date that applies under subclause (b)(i) or (b)(ii), within 3 **business days** from receipt of **Transpower's** notice under subclause (f)(i); or
- (2) in every other case, at least 20 **business days** prior to the date that applies under subclause (b)(i) or (b)(ii); and
- (iii) the **affected designated transmission customer's** notice under subclause (f)(ii) must briefly state the reasons for that **affected designated transmission customer's** belief that the **connection asset variation** does not, or may not, result in net benefits to persons who produce, transmit, distribute, retail or consume **electricity** and, therefore, why the **connection asset variation** should not be made; and
- (iv) following receipt of an **affected designated transmission customer's** notice under subclause (f)(ii), if **Transpower** wishes to make the **connection asset variation**, **Transpower** must apply the **net benefit principle** in accordance with clause A.1.1(b) of Appendix A.

7.3 Short notice connection asset variations by Transpower

7.3.1 Despite clause 7.2, **Transpower** and each **affected designated transmission customer** may agree to a short notice **connection asset variation** (of **connection assets** to which that **designated transmission customer** has **assets** physically connected) in accordance with this clause 7.3, if—

- (a) **Transpower** has insufficient resources to carry out the **planned outage** which is the subject of the notice; or
- (b) forecast adverse weather conditions prevent **Transpower** from undertaking the **planned outage** which is the subject of the notice; or
- (c) the **connection asset variation** is necessary due to **system security** conditions; or
- (d) maintenance, refurbishment, upgrade or replacement of **connection assets** is required to be carried out at short notice; or
- (e) unforeseen planning circumstances arise which prevent **Transpower** from undertaking the **planned outage** which is the subject of the notice; or
- (f) there is a delay in the delivery of equipment needed to undertake a

planned outage which is the subject of the notice.

7.3.2 **Transpower** must send a notice of request for every short notice **connection asset variation** it wishes to make in accordance with this clause to each **affected designated transmission customer** not less than 15 **business days** prior to:

- (a) the earlier of:
 - (i) the proposed commencement of the **planned outage** of **connection assets** which is the subject of the notice; or
 - (ii) the proposed commencement of the short notice **connection asset variation** which is the subject of the notice; or
- (b) if the proposed short notice **connection asset variation** involves adding a new **planned outage** to the **outage plan**, the proposed commencement of that short notice **connection asset variation**.

7.3.3 **Transpower's** notice of request must specify the following:

- (a) the **connection assets** to which the notice relates; and
- (b) the reasons for the requested short notice **connection asset variation**; and
- (c) the benefits associated with the **connection asset variation** identified by **Transpower**; and
- (d) the requested varied **outage** date (if relevant); and
- (e) the requested varied **outage** start and finish times (if relevant); and
- (f) the requested varied **outage** duration (if relevant).

7.3.4 **Transpower** and each **affected designated transmission customer** must use all reasonable endeavours to agree on the short notice **connection asset variation**. If they fail to agree, **Transpower** may undertake the **connection asset variation** if **Transpower** reasonably considers that the **connection asset variation** meets the **net benefit principle**. The short notice **connection asset variation** is deemed to meet the **net benefit principle** where the **connection asset variation** is not reasonably expected by **Transpower** to result in a loss of supply to **consumers**.

7.3.5 Where a short notice **connection asset variation** is made under this clause 7.3, **Transpower** must **publish** as much advance notice as reasonably practicable of the **connection asset variation**.

7.4 Interconnection asset variations by Transpower

7.4.1 **Transpower** may make an **interconnection asset variation** in accordance with the following procedure:

- (a) **Transpower** may, by notice in writing to **interested participants**, propose an **interconnection asset variation**; and
- (b) **Transpower's** notice to **interested participants** of a proposed **interconnection asset variation** must be sent not less than 40 **business days** prior to:
 - (i) the earlier of:
 - (1) the planned commencement of the **planned outage of interconnection assets** which is the subject of the notice; or
 - (2) the proposed commencement of the **interconnection asset variation** which is the subject of the notice, if this is different from the commencement date under subclause (b)(i)(1); or
 - (ii) if the **interconnection asset variation** involves adding a new **planned outage** to the **outage plan**, the proposed commencement of that proposed **planned outage**.
- (c) **Transpower's** notice must specify the following:
 - (i) the **interconnection assets** to which the notice relates; and
 - (ii) the reasons for the requested **interconnection asset variation**; and
 - (iii) the benefits associated with the **interconnection asset variation** identified by **Transpower**; and
 - (iv) the requested varied **outage** date (if relevant); and
 - (v) the requested varied in **outage** start and finish times (if relevant); and
 - (vi) the requested varied **outage** duration (if relevant).
- (d) as soon as reasonably practicable following the notice and, in any case, no later than 7 **business days** following the notice, **Transpower** must **publish** the proposed **interconnection asset variation** and in such **publication** invite representations from each **interested participant** on or before the expiration of 7 **business days** from **publication** of the proposed **interconnection asset variation**; and

- (e) as soon as reasonably practicable, **Transpower** must consult on the proposed **interconnection asset variation** with each **interested participant** who made representations under subclause (d); and
- (f) **Transpower** must have regard to the consultations undertaken with **interested participants** under subclause (e) in determining the timing and duration of the proposed **planned outage** (and whether or not to undertake the **planned outage**). If **Transpower** (taking into account such representations) decides:
 - (i) not to make the **interconnection asset variation**, then **Transpower** must advise each **interested participant** accordingly; or
 - (ii) to make the **interconnection asset variation**, then **Transpower** must **publish** the updated **outage plan**; and
- (g) if **Transpower** publishes an updated **outage plan** under subclause (f)(ii), but an **interested participant** consulted under subclause (e) believes (acting reasonably) that **Transpower** should not undertake the **interconnection asset variation** because it would not, or may not, give effect to the **net benefit principle**, the following provisions apply:
 - (i) the **interested participant** may request **Transpower** to apply the **net benefit principle** in accordance with Appendix A, in order to determine whether the **interconnection asset variation** should remain in the **outage plan**, by providing written notice to **Transpower** within 5 **business days** of the **publication** of the updated **outage plan** showing the **interconnection asset variation**; and
 - (ii) the **interested participant's** notice under subclause (g)(i) must briefly state the reasons for that **interested participant's** belief that the **interconnection asset variation** does not, or may not, result in net benefits to persons who produce, transmit, distribute, retail or consume **electricity**, and, therefore, why the **interconnection asset variation** should not be undertaken; and
 - (iii) following receipt of an **interested participant's** notice under subclause (g)(i)—
 - (1) if **Transpower** wishes to make the **interconnection asset variation**, **Transpower** must apply the **net benefit principle** in accordance with clause A.1.1(b) of Appendix A; or
 - (2) if **Transpower** does not wish to make the **interconnection asset variation**, **Transpower** must advise each **interested participant** consulted under subclause (e) accordingly and **publish** the updated **outage plan**.

7.5 Short notice interconnection asset variations by Transpower

7.5.1 Despite clause 7.4, **Transpower** may make a short notice **interconnection asset variation**, in accordance with this clause 7.5, if—

- (a) **Transpower** has insufficient resources to carry out the **planned outage** which is the subject of the notice; or
- (b) forecast adverse weather conditions prevent **Transpower** from undertaking the **planned outage** which is the subject of the notice; or
- (c) the **interconnection asset variation** is necessary due to **system security** conditions; or
- (d) maintenance, refurbishment, upgrade or replacement of **interconnection assets** is required to be carried out at short notice; or
- (e) unforeseen planning circumstances arise which prevent **Transpower** from undertaking the **planned outage** which is the subject of the notice; or
- (f) there is a delay in the delivery of equipment necessary to carry out a **planned outage of interconnection assets**.

7.5.2 **Transpower's** notice for a short notice **interconnection asset variation** must be sent to each **interested participant** not less than 15 **business days** prior to—

- (a) the earlier of:
 - (i) the proposed commencement of the **planned outage of interconnection assets** which is the subject of the notification; or
 - (ii) the proposed commencement of the short notice **interconnection asset variation** which is the subject of the request; or
- (b) if the proposed short notice **interconnection asset variation** involves adding a new **planned outage** to the **outage plan**, the proposed commencement of that short notice **interconnection asset variation**.

7.5.3 **Transpower's** notice must specify the following:

- (a) the **interconnection assets** to which the notice relates; and
- (b) the reasons for the proposed short notice **interconnection asset variation** identified by **Transpower**; and
- (c) the benefits associated with the **interconnection asset variation**; and

- (d) the requested varied **outage** date (if relevant); and
- (e) the requested varied **outage** start and finish times (if relevant); and
- (f) the requested varied **outage** duration (if relevant).

7.5.4 The short notice **interconnection asset variation** is deemed to meet the **net benefit principle** where the variation is not reasonably expected by **Transpower** to result in a loss of supply to **consumers**, in which case **Transpower** may undertake the **interconnection asset variation**.

7.5.5 Where **Transpower** is to make a short notice **interconnection asset variation** under this clause 7.5, **Transpower** must **publish** as much advance notice as reasonably practicable of the **interconnection asset variation**.

7.6 Other variations

7.6.1 Despite clauses 7.2, 7.3, 7.4, and 7.5, **Transpower** may also make a **connection asset variation** or an **interconnection asset variation** if the variation is necessary—

- (a) as a result of a **grid emergency**; or
- (b) in order to maintain the health and safety of any person; or
- (c) in order to maintain the safety and integrity of equipment; or
- (d) in order to comply with the **Act**; or
- (e) in order to meet a request by the **system operator** that **Transpower** vary the proposed **planned outage**; or
- (f) due to other circumstances beyond **Transpower's** reasonable control.

7.6.2 Where **Transpower** makes any variation under clause 7.6.1, it must, where possible, give notice of the variation prior to the proposed **planned outage**, or if prior notice is not possible, advise of the **interconnection asset variation** or the **connection asset variation** (as the case may be) as soon as reasonably possible after the **outage** begins.

8. Management of planned outages

8.1 Undertaking of planned outages

8.1.1 When undertaking a **planned outage**, **Transpower** must use all reasonable endeavours to commence and complete the **planned outage** in accordance with the **outage plan**.

8.1.2 If **Transpower** decides not to carry out a **planned outage** in order to comply with part C of the **rules** [*Part 8 of the Code*], **Transpower** must **publish** its decision as soon as reasonably practicable.

8.1.3 **Transpower, designated transmission customers** and **participants** must act reasonably and in good faith in implementing the **outage plan**.

8.2 Co-ordination of planned outages

8.2.1 **Transpower's** procedures for co-ordination of **planned outages** are as follows:

- (a) obtain (as it reasonably considers appropriate) a security analysis from the **system operator** (including specialist studies, constraints, and risk assessment providing advice and options for a **planned outage**); and
- (b) collate and **publish** the **outage plan**; and
- (c) communicate with **interested participants** and **affected designated transmission customers** in accordance with the requirements of this **Outage Protocol**; and
- (d) discuss with **interested participants** and **designated transmission customers** the impact of the **planned outage** on supply and, if reasonably considered appropriate, meet with those **interested participants** and **designated transmission customers** for that purpose; and
- (e) where practicable, minimise the effect of a **planned outage** on security, power quality and availability, and the operations of **designated transmission customers**; and
- (f) use reasonable endeavours to minimise the number of variations to **planned outages**.

9. Management of unplanned outages

9.1 Designated transmission customer request for an unplanned outage

9.1.1 A **designated transmission customer** may, by notice in writing to **Transpower**, request an **unplanned outage of connection assets** to which the **designated transmission customer** has **assets** physically connected.

9.1.2 The **designated transmission customer's** notice of request must specify the following:

- (a) the **connection assets** to which the notice relates; and
- (b) the reasons for the requested **unplanned outage of connection assets**; and
- (c) the benefits associated with the **unplanned outage** identified by the **designated transmission customer**; and
- (d) the requested date of the **unplanned outage** (if relevant); and
- (e) the requested start and finish times of the **unplanned outage** (if relevant); and
- (f) the requested duration of the **unplanned outage** (if relevant).

9.1.3 **Transpower** must accept the request if, in **Transpower's** opinion—

- (a) the **unplanned outage** requested will not materially adversely affect the conveyance of electricity to another **designated transmission customer** or its **assets**; and
- (b) **Transpower** has sufficient resources to carry out the **unplanned outage** requested; and
- (c) the requested **unplanned outage** does not conflict with any **planned outage** or any other **unplanned outage**.

9.1.4 **Transpower** must **publish** as much advance notice as reasonably practicable of each **unplanned outage** accepted under this clause 9.1.

9.2 Transpower undertaking unplanned outages on the grid

9.2.1 **Transpower** may undertake an **unplanned outage** if—

- (a) it is necessary as a result of a **grid emergency**, in order to maintain health and safety of personnel or the safety and integrity of equipment, in order to

comply with the **Act** or due to other circumstances beyond **Transpower's** reasonable control; or

- (b) it is required to meet a request of the **system operator**; or
- (c) a failure of a **grid** component requires that it be taken out of service; or
- (d) maintenance, refurbishment, upgrade or replacement of **connection assets** or **interconnection assets** is required to be carried out urgently; or
- (e) it is required in accordance with **good electricity industry practice**.

9.2.2 **Transpower** must **publish** as much advance notice as reasonably practicable of each **unplanned outage** undertaken in accordance with this clause 9.2.

9.3 Policies and procedures for dealing with unplanned outages

9.3.1 **Transpower** must deal with an **unplanned outage** as quickly as reasonably possible in accordance with the policies and procedures set out in clauses 9.3.2 and 9.3.3 below and otherwise in accordance with **good electricity industry practice**.

9.3.2 **Transpower's** policies for dealing with **unplanned outages**, with the objective of minimising the costs and, if relevant, maximising the benefits arising from an **unplanned outage**, are as follows:

- (a) to comply with relevant statutory requirements; and
- (b) to act in accordance with **good electricity industry practice**; and
- (c) to **publish** standards or service specifications which **Transpower** personnel and its contractors are to endeavour to observe in the event of an **unplanned outage**; and
- (d) to maintain processes and plans which **Transpower** personnel and its contractors are to endeavour to observe in the event of an **unplanned outage**; and
- (e) to maintain in accordance with **good electricity industry practice** access to qualified and experienced personnel to assist **Transpower** in dealing with an **unplanned outage**; and
- (f) to maintain in accordance with **good electricity industry practice** inventories of spares and consumables which are available in the event of an **unplanned outage** for use in the restoration of the power system.

9.3.3 **Transpower's** procedures for dealing with **unplanned outages**, with the objective of minimising the costs and, if relevant, maximising the benefits arising from an **unplanned outage**, are as follows:

- (a) communicate with the **system operator**, fault response personnel and **affected designated transmission customers** to manage the restoration of system equipment and the management of demand to control frequency and voltage; and
- (b) assess the likely causes of the **unplanned outage**, what equipment should not be returned to service, plan the restoration of equipment and keep **affected designated transmission customers** advised of progress; and
- (c) communicate with **affected designated transmission customers** as soon as practical following the start of an **unplanned outage**; and
- (d) if normal communications are lost, use reasonable endeavours to contact **affected designated transmission customers**; and
- (e) maintain systems and processes for the following:
 - (i) document management of **system operator** standing instructions; and
 - (ii) personnel training and competency assessment and certification; and
 - (iii) demand management; and
 - (iv) communications management; and
 - (v) equipment restoration planning management; and
 - (vi) reporting and recording management; and
 - (vii) transmission island control management; and
 - (viii) loss of communications situation management.

9.3.4 The 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**, are as follows:

- (a) use all reasonable endeavours to ensure that it is aware of and able to comply with relevant statutory requirements; and
- (b) ensure that it is aware of and able to comply with **good electricity industry practice**; and

- (c) develop and maintain standards and services specifications that **Transpower** and its contractors are to endeavour to observe in the event of an **unplanned outage**, and ensure that **Transpower** has the necessary contractual arrangements with its contractors to ensure that its contractors meet these standards and service specifications; and
- (d) ensure that **Transpower** personnel and its contractors are given notice of, trained in and have experience of, the processes and plans maintained so that they are able to endeavour to observe them in the event of an **unplanned outage**; and
- (e) have contracts in place with qualified and experienced contractors to ensure those contractors are available to assist **Transpower** in dealing with an **unplanned outage** on terms and within timelines determined by **Transpower** acting in accordance with **good electricity industry practice**; and
- (f) ensure that **Transpower** maintains in accordance with **good electricity industry practice** inventories of spares and consumables of types and at locations which in **Transpower's** judgment are most likely to best assist **Transpower** in restoring the power system in the event of an **unplanned outage**; and
- (g) ensure that **Transpower** has resources to manage and implement the procedures referred to in clause 9.3.3; and
- (h) in regional or local areas conduct such trials of the use of the above steps and measures as **Transpower** considers appropriate to test its preparation for **unplanned outages**.

10. Reporting

10.1 Annual compliance report

10.1.1 **Transpower** must after each **outage plan year publish** and provide a written report to each **designated transmission customer** and to the **Board [Authority]** on its compliance with the requirements of this **Outage Protocol**, including its compliance with the requirements for giving effect to the **net benefit principle** and the requirements relating to **unplanned outages**.

10.2 Availability and reliability reporting

10.2.1 For the purposes of—

- (a) the service levels in Part A of Schedule 5 (Service Measures) which relate to availability and reliability at a **point of connection** in a **transmission agreement** (if in the same form as Part A of Schedule 5 of the **benchmark agreement** in schedule F2 [*the benchmark agreement incorporated by reference in the Code under clause 12.34*]); and
- (b) the performance reporting on **connection assets** required under clause 37.1 (b) and (c) of a **transmission agreement** (if in the same form as clause 37.1 (b) and (c) of the **benchmark agreement** in schedule F2 [*the benchmark agreement incorporated by reference in the Code under clause 12.34*]); and
- (c) reporting on the availability and reliability of **interconnection assets** under rule 10 of section VI of part F [*clauses 12.120 to 12.127 of the Code*],—

any **outage of connection assets or interconnection assets** which is notified less than 24 hours before the **outage** occurs, or where **connection assets or interconnection assets** are temporarily not provided less than 24 hours after the necessity for the **outage** arises, will be an **unplanned outage** notwithstanding that such **outage** may be **published** in the **outage plan**.

11. Transitional arrangements

11.1 Transitional arrangements

This **Outage Protocol** applies as follows:

- (a) in all respects for the **outage year** commencing 1 July 2009; and
- (b) in respect of clause 9 only, for the **outage year** commencing 1 July 2008.

11.2 Compliance with service measures during transitional period

Until 1 July 2009, **Transpower** is not required to meet its obligations under clause 36.1(a) of a default **transmission agreement**, entered into in accordance with rule 3.1.3.1 of section II [*clause 12.10(1) of the Code*], or to comply with rules 3.1.1 or 3.2 of section VI [*clauses 12.111(1)(a) or 12.111(2) of the Code*], if it undertakes a **planned outage** in accordance with **Transpower's outage** planning and **outage** co-ordination procedures **published** by **Transpower** from time to time.

APPENDIX A

PART 1

A.1 Means by which the net benefit principle is given effect

A.1.1 This **Outage Protocol** gives effect to the **net benefit principle** by the following means:

- (a) A **planned outage**, a **connection asset variation** or an **interconnection asset variation** is deemed to meet the **net benefit principle**, and may be carried out in accordance with this **Outage Protocol**, unless the circumstances set out in subclause (b) apply. This is because:
 - (i) It is presumed that a **planned outage**, **connection asset variation** or **interconnection asset variation**, in general, will result in a net reduction in **expected unserved energy**; and
 - (ii) The value of unserved energy is defined by clause 8.3.4 of schedule F4 of section III [*the **value of expected unserved energy** in clause 4 of Schedule 12.2 of the Code*]; and
 - (iii) Due to the high value of unserved energy, in general, a **planned outage**, **connection asset variation** or **interconnection asset variation**, will result in a high value of benefits to persons who produce, transmit, distribute, retail or consume **electricity**.
- (b) If—
 - (i) notice is given by a **designated transmission customer** in accordance with clause 3.3.6(b), 4.2.1(f), or 7.2.1(f), or notice is given by an **interested participant** in accordance with clause 3.2.4(c), 5.2.3(f), or 7.4.1(g); and
 - (ii) the proposed **planned outage**, **connection asset variation** or **interconnection asset variation** that is the subject of the notice is reasonably expected by **Transpower** to (1) result in the power system failing to meet **grid reliability standards**; and/or (2) give rise to **binding constraints**; and/or (3) result in loss of supply to **consumers**,—

then **Transpower** must undertake the **net benefit test** to determine whether the **planned outage**, **connection asset variation** or **interconnection asset variation** that is the subject of the notice should be included in the **outage plan**, continue to be effective, or be removed from the **outage plan** (as the case may be depending on whether the notice was given under clause 3.2.4(c), 3.3.6(b), 4.2.1(f), 5.2.3(f), 7.2.1(f), or 7.4.1(g)).

- (c) When a **net benefit test** is undertaken under clause A.1.1(b), the following provisions apply:
- (i) if the result of the **net benefit test** is positive,—
- (1) if the **net benefit test** was required to be undertaken by a notice under clause 3.2.4(c) or 3.3.6(b), **Transpower** may include the proposed **planned outage** in the **outage plan**; or
 - (2) if the **net benefit test** was required to be undertaken by a notice under clause 4.2.1(f), **Transpower** must make the **connection asset variation** and **publish** the updated **outage plan**; or
 - (3) if the **net benefit test** was required to be undertaken by a notice under clause 5.2.3(f), the **interconnection asset variation** will remain effective and the **outage plan** does not need to be updated; or
 - (4) if the **net benefit test** was required to be undertaken by a notice under clause 7.2.1(f), **Transpower** may make the **connection asset variation** and, if it does so, must **publish** the updated **outage plan**; or
 - (5) if the **net benefit test** was required to be undertaken by a notice under clause 7.4.1(g), **Transpower** may make the **interconnection asset variation** and, if it does so, must **publish** the updated **outage plan**; or
- (ii) if the result of the **net benefit test** is zero or negative,—
- (1) if the **net benefit test** was required to be undertaken by a notice under clause 3.2.4(c) or 3.3.6(b), **Transpower** must not include the proposed **planned outage** in the **outage plan**; or
 - (2) if the **net benefit test** was required to be undertaken by a notice under clause 4.2.1(f), **Transpower** is not required to make the **connection asset variation**; or
 - (3) if the **net benefit test** was required to be undertaken by a notice under clause 5.2.3(f), **Transpower** must remove the **interconnection asset variation** from the **outage plan** and **publish** the updated **outage plan**; or

- (4) if the **net benefit test** was required to be undertaken by a notice under clause 7.2.1(f), **Transpower** must not make the **connection asset variation**; or
 - (5) if the **net benefit test** was required to be undertaken by a notice under clause 7.4.1(g), **Transpower** must not make the **interconnection asset variation**.
- (d) When **Transpower** is required under clause A.1.1(b) to undertake a **net benefit test**, **Transpower** must **publish** the results of undertaking the **net benefit test**, including:
 - (i) a summary of the costs and benefits considered in accordance with this Appendix A;
 - (ii) the key assumptions made in applying the **net benefit test**;
 - (iii) a description of the methodologies applied; and
 - (iv) the net benefit or net cost, as the case may be, that **Transpower** determined would arise.

PART 2

A.2 The net benefit test

A.2.1 Subject to clauses A.3, A.4 and A.5, when **Transpower** undertakes this **net benefit test**, **Transpower** must estimate the costs described in clause A.6.1 and the benefits described in clause A.6.2 based on information reasonably available to it at the time and taking into account the number of **assets** to which the proposed **outage** applies, its estimate of the value of the **assets** involved, its estimate of the size of the load served by the **assets** and the proposed duration of the **outage**; and

A.2.2 **Transpower** must apply differing levels of rigour in undertaking the **net benefit test** 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.

A.3 The net benefit test where a planned outage is likely to fail to meet the grid reliability standards

A.3.1 Where a proposed **planned outage, connection asset variation** or **interconnection asset variation** 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**, when undertaking the **net benefit test**, **Transpower** must use—

- (a) the estimated costs described in clause A.6.1, excluding sub-clauses (d) and (e); and
- (b) the estimated benefits described in clause A.6.2, excluding sub-clauses (c) and (d).

A.4 The net benefit test where a planned outage is likely to give rise to binding constraints

A.4.1 Where a proposed **planned outage, connection asset variation** or **interconnection asset variation** 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**, when undertaking the **net benefit test**, **Transpower** must use—

- (a) the estimated costs described in clause A.6.1, excluding sub-clause (e); and
- (b) the estimated benefits described in clause A.6.2, excluding sub-clauses (a) and (d).

A.5 The net benefit test where a planned outage is likely to lead to a loss of supply

A.5.1 Where a proposed **planned outage, connection asset variation or interconnection asset variation** is likely to lead to loss of supply to **consumers**, whether or not the **outage** is also likely to give rise to **binding constraints**, when undertaking the **net benefit test**, **Transpower** must use—

- (a) the estimated costs described in clause A.6.1, excluding sub-clauses (c) and (d); and
- (b) the estimated benefits described in clause A.6.2, excluding sub-clause (a).

A.6 Estimates of costs and benefits

A.6.1 Estimates of costs:

- (a) the direct labour and material costs that **Transpower** will incur when undertaking the outage;
- (b) the direct labour and material costs that **designated transmission customers** will incur as a result of **Transpower** undertaking the outage;
- (c) the extent of any increase in **expected unserved energy** arising from any increased risk that the **outage** may result in loss of **supply**;
- (d) any additional fuel costs incurred by any **generators** in respect of any generating unit that will, or will be likely, to be dispatched during or after the **outage** and as a result of the **outage**;
- (e) the extent of any increase in **expected unserved energy** arising from loss of **supply** during the **outage**;
- (f) any relevant matter specified in clauses 27.1 to 27.9 of schedule F4 of section III [*clause 12.43(1)(a)(iv) and (b)(iv) of the Code*], where the matter referred to in those clauses is a benefit to any person that produces, transmits, retails or consumes **electricity** in New Zealand; and
- (g) any other cost to any person that produces, transmits, retails or consumes **electricity** in New Zealand that **Transpower** reasonably considers to be relevant to the **outage**.

A.6.2 Estimates of benefits:

- (a) 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;
- (b) any reduction in maintenance costs, capital costs, refurbishment costs and operating costs resulting from the outage (including **Transpower's** and any **designated transmission customer's** costs);
- (c) any reduction in fuel costs incurred by any **generator** in respect of any generating unit, arising or likely to arise during or after the **outage** and as a result of the **outage**;

- (d) the extent of any decrease in **expected unserved energy** arising from the **outage**;
- (e) any relevant matter specified in clauses 27.1 to 27.9 of schedule F4 of section III [*clause 12.43(1)(a)(iv) and (b)(iv) of the Code*], 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
- (f) any other benefit to any person who produces, transmits, retails or consumes **electricity** in New Zealand that **Transpower** reasonably considers to be relevant to the **outage**.

A.7 Methodology for determining expected unserved energy with respect to planned outages

A.7.1 **Transpower** must use the methodology set out in clause A.7.2 to determine the amount and value of **expected unserved energy** for use in this **net benefit test** for the following purposes:

- (a) to calculate the extent of any increase in **expected unserved energy** arising from any increased risk that the **outage** may result in loss of **supply**;
- (b) to calculate the extent of any increase in **expected unserved energy** arising from loss of **supply** during the **outage**.

A.7.2 **Transpower** must estimate the amount and value of **expected unserved energy** as follows:

- (a) in the case of **connection assets**—
 - (i) the estimated actual amount and value of **expected unserved energy** as agreed between **Transpower** and each **affected designated transmission customer**; or
 - (ii) if **Transpower** and an **affected designated transmission customer** cannot agree on the amount and value of **expected unserved energy** under subclause (1), the value of unserved energy will be that which applies under clauses 8.3.4 and 8.4.3 of schedule F4 of section III [*the value of expected unserved energy in clause 4 of Schedule 12.2 of the Code*], and the amount of **expected unserved energy** will be **Transpower's** estimate of the amount of **expected unserved energy** in respect of each **affected designated transmission customer** and end use customer; or
- (b) in the case of **interconnection assets**—
 - (i) the value of unserved energy must be the value that applies under clauses 8.3.4 and 8.4.3 of schedule F4 of section III [*the value of expected unserved energy in clause 4 of Schedule 12.2 of the Code*]; and
 - (ii) the amount of **expected unserved energy** will be **Transpower's** reasonable estimate of **expected unserved energy** for each **affected designated transmission customer** and each end use customer.

A.8 Other methodologies

A.8.1 In respect of clause A6.1:

- (a) the fuel costs must—
 - (i) in the case of thermal **generating stations**, be estimated having regard to the fuel costs specified in the **statement of opportunities** [*calculated in accordance with clause 12.141(3)(a)(i) of the Code*]; or
 - (ii) 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** at least annually;
- (b) the direct labour costs 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**; and
- (c) the material costs must be the costs of the materials used in carrying out the work during the **outage**.