7.1 Contents of this Part

This Part provides for—

(a) a reasonable and prudent system operator standard; and

(b) the functions of the system operator in relation to demand and supply forecasting, security of supply, and supply emergencies; and

(c) review of the system operator’s performance under the Act, this Code, and the relevant market operation service provider agreement.

Clause 7.1(aa): inserted, on 19 May 2016, by clause 7(1) of the Electricity Industry Participation Code Amendment (System Operator and Alignment with Statutory Objective) 2016.

Clause 7.1(a): amended, on 19 May 2016, by clause 7(2) of the Electricity Industry Participation Code Amendment (System Operator and Alignment with Statutory Objective) 2016.
7.1A Reasonable and prudent system operator standard

(1) The system operator must carry out its obligations under this Code with skill, diligence, prudence, foresight, good economic management, and in accordance with recognised international good practice, taking into account—
(a) the circumstances in New Zealand; and
(b) the fact that real-time co-ordination of the power system involves complex judgements and inter-related events.

(2) The system operator does not breach a principal performance obligation or clause 8.5 of this Code if the system operator complies with subclause (1).

Clause 7.1A: inserted, on 19 May 2016, by clause 8 of the Electricity Industry Participation Code Amendment (System Operator and Alignment with Statutory Objective) 2016.

7.2 Principal performance obligations of the system operator in relation to common quality and dispatch

The obligations in clauses 7.2A to 7.2D are principal performance obligations.


7.2A System operator to maintain frequency

(1) The system operator must dispatch assets made available in a manner that avoids cascade failure of assets resulting in a loss of electricity to consumers arising from—
(a) a frequency or voltage excursion; or
(b) a supply and demand imbalance.

(2) Except as provided in this clause and clause 7.2B, the system operator must maintain frequency in the normal band.

(3) The system operator must ensure that the scheduling, pricing, and dispatch tool has the information necessary to schedule a minimum quantity of instantaneous reserve.

(4) Subject to the availability of offers or reserve offers, the system operator must schedule sufficient instantaneous reserve to meet the system operator's obligations in subclauses (5) to (7).

(5) During a contingent event, the system operator must ensure that, for the island in which the contingent event takes place—
(a) frequency remains at or above 48 Hertz; and
(b) frequency returns to or above 49.25 Hertz within 60 seconds after the contingent event.

(6) During an extended contingent event in the North Island, the system operator must ensure that, for that island—
(a) frequency remains at or above 47 Hertz; and
(b) frequency does not drop to or below 47.1 Hertz for longer than 5 seconds; and
(c) frequency does not drop to or below 47.3 Hertz for longer than 20 seconds; and
(d) frequency returns to or above 49.25 Hertz within 60 seconds after the extended contingent event.
(7) During an extended contingent event in the South Island, the **system operator** must ensure that, for that **island**—
(a) frequency remains at or above 45 Hertz; and
(b) frequency returns to or above 49.25 Hertz within 60 seconds after the extended contingent event.

7.2B **System operator to restore frequency if frequency fluctuation occurs**

If a **frequency fluctuation** occurs, the **system operator** must ensure that frequency is restored to the **normal band** as soon as reasonably practicable having regard to all circumstances surrounding the **frequency fluctuation**.

7.2C **System operator to manage frequency time error**

(1) The **system operator** must ensure that any deviations from **New Zealand standard time** in the power system, caused by variations in system frequency, do not exceed 5 seconds.

(2) At least once in each day, the **system operator** must eliminate from the power system any deviations from **New Zealand standard time** caused by variations in system frequency.

7.2D **System operator to identify and resolve problems**

(1) A **participant** may request that the **system operator** investigate and resolve a security of supply or reliability problem arising from non-compliance with a standard in clause 4.7, 4.8, or 4.9 of the **Connection Code**, at any **point of connection** to the **grid**.

(2) If the **system operator** receives a reasonable request under subclause (1), the **system operator** must, given the **assets** made available to it at the relevant time—
(a) identify whether there is a security of supply or reliability problem arising from non-compliance with a standard in clause 4.7, 4.8, or 4.9 of the **Connection Code**, at any **point of connection** to the **grid**; and
(b) if there is such a problem—
   (i) identify the cause of the problem; and
   (ii) resolve the problem to the extent reasonable and practical.

7.2E **System operator to report on frequency fluctuations**

(1) By the 10th **business day** of each month (except by the 20th **business day** in the month of January), the **system operator** must report to the **Authority** the number of **frequency fluctuations** in each of the following frequency bands, in each **island** in the previous month:

<table>
<thead>
<tr>
<th>Frequency band (Hertz) (where &quot;x&quot; is the maximum or minimum frequency during a frequency fluctuation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>52.00 &gt; x ≥ 51.25</td>
</tr>
<tr>
<td>51.25 &gt; x ≥ 50.50</td>
</tr>
</tbody>
</table>
49.50 > x ≥ 48.75
48.75 > x ≥ 48.00
48.00 > x ≥ 47.00

(2) By the 10th business day of each month (except by the 20th business day in the month of January), the system operator must report to the Authority the number of frequency fluctuations in each of the following frequency bands, in the South Island in the previous month:

<table>
<thead>
<tr>
<th>Frequency band (Hertz) (where &quot;x&quot; is the maximum or minimum frequency during a frequency fluctuation)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>55.00 &gt; x ≥ 53.75</td>
<td></td>
</tr>
<tr>
<td>53.75 &gt; x ≥ 52.00</td>
<td></td>
</tr>
<tr>
<td>47.00 &gt; x ≥ 45.00</td>
<td></td>
</tr>
</tbody>
</table>

7.3 Functions of system operator in relation to security of supply and emergency management

(1) The system operator must—
(a) prepare and publish a security of supply forecasting and information policy that includes a requirement that the system operator—
(i) prepare and publish at least annually a security of supply assessment that contains detailed supply and demand forecasts for at least 5 years, which assists interested parties to assess whether the energy security of supply standard and the capacity security of supply standard set out in subclause (2) are likely to be met; and
(ii) consult with persons that the system operator thinks are representative of the interests of persons likely to be substantially affected by a security of supply assessment prepared under subparagraph (i) before publishing such an assessment; and
(iii) prepare and publish information that assists interested parties to monitor how hydro and thermal generating capacity, transmission assets, primary fuel, and ancillary services are being utilised to manage risks of shortage, including extended dry periods; and
(iv) publish, in relation to the information published under subparagraphs (i) and (iii), sufficient details of the modelling data, assumptions, and
methodologies that the system operator has used to prepare that information as to allow interested parties to recreate that information (but without publishing information that is confidential to any participant); and

(b) implement and comply with the security of supply forecasting and information policy prepared and published in accordance with paragraph (a).

(2) For the purposes of subclause (1)(a)(i)—

(a) the energy security of supply standard is a winter energy margin of 14-16% for New Zealand and a winter energy margin of 25.5-30% for the South Island; and

(b) the capacity security of supply standard is a winter capacity margin of 630-780 MW for the North Island.

(2A) The Authority may publish a security standards assumptions document.

(2B) Subject to subclauses (2C) and (2D), if the Authority has published a security standards assumptions document under subclause (2A), the system operator must use the assumptions set out in that document in preparing a security of supply assessment under the security of supply forecasting and information policy.

(2C) The system operator may use different assumptions from those in a security standards assumptions document to prepare a security of supply assessment if—

(a) the system operator considers that there are good reasons to use different assumptions; and

(b) the system operator includes in the security of supply assessment—

(i) a detailed explanation of the assumptions used to prepare the security of supply assessment; and

(ii) a statement of reasons for using those assumptions instead of the assumptions published by the Authority; and

(iii) a description of how the security of supply assessment prepared using those assumptions differs from a security of supply assessment prepared using the assumptions set out in the security standards assumptions document.

(2D) Despite subclause (2C), the system operator is not required to include the information referred to in subclause (2C)(b) in a security of supply assessment if the system operator considers that it would have good reason to refuse to supply the information under clause 2.6.

(3) The system operator must—

(a) prepare and publish an emergency management policy that sets out the steps that the system operator must take, and must encourage participants to take, at various stages during an extended emergency such as an extended dry sequence or an extended period of capacity inadequacy; and

(b) include in the emergency management policy the steps that, at various stages in anticipation of and during a gas transmission failure or gas supply failure to generators, the system operator must—

(i) take as the system operator; and

(ii) encourage participants to take, including, if appropriate, steps for relevant participants to take in conjunction with gas industry entities; and

(iii) encourage relevant gas industry entities to take; and

(c) implement and comply with the emergency management policy.
(4) The emergency management policy is not required to include information that is already set out in—
   (a) the system operator rolling outage plan prepared under subpart 1 of Part 9; or
   (b) the policy statement; or
   (c) Technical Code B of Schedule 8.3.

(5) The system operator may depart from the policies set out in an emergency management policy if an EMP departure situation arises and such departure is required to enable the system operator to comply with clause 7.1A(1).

(6) If the system operator makes a departure under subclause (5), the system operator must provide a report to the Authority setting out the circumstances of the EMP departure situation and the actions taken to deal with it. The Authority must publish the report within a reasonable time of its receipt.

Clause 7.3(1)(a): amended, on 19 May 2016, by clause 11(2) of the Electricity Industry Participation Code Amendment (System Operator and Alignment with Statutory Objective) 2016.
Clause 7.3(2A), (2B), (2C) and (2D): inserted, on 3 January 2013, by clause 4(3) of the Electricity Industry Participation (Supply Standards) Code Amendment 2012.
Clause 7.3(3)(a): amended, on 19 May 2016, by clause 11(6)(a) and (b) of the Electricity Industry Participation Code Amendment (System Operator and Alignment with Statutory Objective) 2016.
7.4 Incorporation of security of supply forecasting and information policy and emergency management policy by reference

(1) The security of supply forecasting and information policy and the emergency management policy are incorporated by reference in this Code in accordance with section 32 of the Act.

(2) Subclause (1) is subject to Schedule 1 of the Act, which includes a requirement that the Authority must give notice in the Gazette before an amended or substituted security of supply forecasting and information policy or emergency management policy becomes incorporated by reference in this Code.


7.5 Approval of draft security of supply forecasting and information policy and emergency management policy

(1) The system operator may submit to the Authority for approval a draft security of supply forecasting and information policy or a draft emergency management policy to replace an existing security of supply forecasting and information policy or emergency management policy as the case may be.

(2) [Revoked]

(3) In preparing the draft security of supply forecasting and information policy or the draft emergency management policy, the system operator must—

(a) consult with persons that the system operator thinks are representative of the interests of persons likely to be substantially affected by the policies; and

(b) consider submissions made on the policies.

(4) The system operator must provide a copy of each submission received under subclause (3) to the Authority.

(5) The Authority must, as soon as practicable after receiving the draft security of supply forecasting and information policy or the draft emergency management policy, by notice in writing to the system operator,—

(a) approve the relevant policy; or

(b) decline to approve the relevant policy.

(6) If the Authority declines to approve the draft security of supply forecasting and information policy or the draft emergency management policy, the Authority must publish the changes that the Authority wishes the system operator to make to the relevant draft policy.

(7) When the Authority publishes the changes that the Authority wishes the system operator to make to the relevant draft policy under subclause (6), the Authority must advise the system operator and interested parties of the date by which submissions on the changes must be received by the Authority.

(8) Each submission on the changes to the draft policy must be made in writing to the Authority and be received on or before the date the Authority advises under subclause (7). The Authority must provide a copy of each submission received to the system operator and must publish the submissions.

(9) The system operator may make its own submission on the changes to the draft policy and the submissions received in relation to the changes. The Authority must publish
the system operator’s submission when it is received.

(10) The Authority must consider the submissions made to it on the changes to the draft policy.

(11) Following the consultation required by subclauses (7) to (10), the Authority may approve the draft policy subject to the changes that the Authority considers appropriate being made by the system operator.


7.6 Variations to security of supply forecasting and information policy and emergency management policy

(1) A participant or the Authority may submit a proposal for a variation to the security of supply forecasting and information policy or the emergency management policy to the system operator.

(2) The system operator must consider a proposed variation to the security of supply forecasting and information policy or the emergency management policy submitted under subclause (1).

(3) The system operator may submit a request for a variation to the security of supply forecasting and information policy or the emergency management policy to the Authority.

(4) Clause 7.5(3) to (11) apply to a request for a variation submitted under subclause (3) as if references to a draft policy were a reference to the requested variation.

(5) The Authority may approve a variation requested under subclause (3) without complying with subclause (4) if—

(a) the Authority considers that it is necessary or desirable in the public interest that the requested variation be made urgently; and

(b) the Authority publishes a notice of the variation and a statement of the reasons why the urgent variation is needed.

(6) Every variation made under subclause (5) expires on the date that is 9 months after the date on which the variation is made.

7.7 System operator and Authority joint development programme

(1) At least annually, the system operator and the Authority must agree a development programme that coordinates and prioritises—

(a) those items in the Authority's industry development work plan on which the Authority intends to liaise with the system operator; and

(b) the system operator's capital expenditure plan provided to the Authority under the system operator market operation service provider agreement.

(2) The Authority must publish the programme agreed under subclause (1).

7.8 Review of system operator

(1) The Authority must review the performance of the system operator at least once in
each year ending 30 June, after the **system operator** submits its self-review under clause 7.11.

(2) The review must concentrate on the **system operator’s** compliance with—

(a) its obligations under this Code and the **Act**; and

(b) the operation of this Code and the **Act**; and

(c) any performance standards agreed between the **system operator** and the Authority; and

(d) the provisions of the **system operator’s** market operation service provider agreement.

(3) The **Authority** must publish a report on the performance of the **system operator** no later than 10 business days after the **Authority** completes its review.

7.9 Additional matters to be taken into account in system operator review

The **Authority** must take into account the following matters when conducting a review under clause 7.8:

(a) the terms of the **system operator’s** market operation service provider agreement;

(b) reports from the **system operator** to the **Authority**, including the **system operator’s** self-review under clause 7.11;

(c) the performance of the **system operator** over time in relation to this Part and Part 8;

(d) the extent to which the acts or omissions of other persons have impacted on the performance of the **system operator** and the nature of the task being monitored;

(e) reports or complaints from any person, and any responses by the **system operator** to such reports or complaints;

(f) the fact that the real time co-ordination of the power system involves a number of complex judgments and inter-related incidents;

(g) any disparity of information between the **Authority** and the **system operator**;

(h) any other matter the **Authority** considers relevant to assess the **system operator’s** performance.

7.10 Separation of Transpower roles

(1) **Transpower’s** role as **system operator** under this Code and the **Act** is distinct and separate from any other role or capacity that **Transpower** may have under this Code.
and the Act, including as a grid owner or transmission provider.

(2) For this purpose, when assessing an aspect of the performance, or non-performance, of the system operator,—

(a) the assessment must be made on the basis that the system operator had no other role or capacity; and

(b) the system operator must be treated as if it did not have any knowledge or information that may be received or held by Transpower unless Transpower receives or holds that information or knowledge in its capacity as system operator.

(3) Subclause (2) applies, with necessary modifications, to an assessment of an aspect of the performance, or non-performance, of Transpower in any other role or capacity under this Code or the Act.

(4) Transpower must report, in each self-review report provided under this Code, on the extent to which its role as system operator under this Code and the Act has, despite subclauses (1) to (3), been materially affected by—

(a) any other role or capacity that Transpower has under this Code or the Act; or

(b) an agreement.

Compare: SR 2003/374 r 50

7.11 Review of performance of the system operator

(1) No later than 31 August in each year, the system operator must submit to the Authority a review and assessment of its performance in the previous 12 month period ending 30 June.

(2) The self-review must contain such information as the Authority may reasonably require from time to time to enable the Authority to review the system operator’s performance during the period in relation to the following:

(a) the policy statement:

(b) the security of supply forecasting and information policy:

(c) the emergency management policy:

(d) the joint development programme prepared under clause 7.7(1):

(e) the work programmes agreed with the Authority under the system operator's market operation service provider agreement:

(f) the system operator's engagement with participants:

(g) delivery of the system operator's capital and business plans:

(h) the financial and operational performance of the system operator.

(3) [Revoked]

(4) [Revoked]

Compare: Electricity Governance Rules rule 14 section II part C
Clause 7.11(1): amended, on 19 May 2016, by clause 15(1)(a) and (b) of the Electricity Industry Participation Code Amendment (System Operator and Alignment with Statutory Objective) 2016.
Clause 7.11(3) and (4): revoked, on 19 May 2016, by clause 15(3) of the Electricity Industry Participation Code Amendment (System Operator and Alignment with Statutory Objective) 2016.
7.12 Authority must publish system operator reports

(1) The Authority must publish all self-review reports that are received from the system operator and that are required to be provided by the system operator to the Authority under this Code.

(2) The Authority must publish each report within 5 business days after receiving the report.

Compare: SR 2003/374 r 49