

**Electricity Industry Participation (Scarcity Pricing) Code
Amendment 2011**

Pursuant to section 38 of the Electricity Industry Act 2010, I make the following amendments to the Electricity Industry Participation Code 2010.

At Wellington on the 26th day of October 2011



Dr Thomas Brent Layton
Chairperson
Electricity Authority

Certified in order for signature:



Ross Hill
General Manager Legal and Compliance
Electricity Authority
21 October 2011



Tony Dellow
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20 October 2011

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Amendment

- 1 Title**
This is the Electricity Industry Participation (Scarcity Pricing) Code Amendment 2011.
- 2 Commencement**
This Amendment comes into force on 1 June 2013.
- 3 Principal Code amended**
This Amendment amends the Electricity Industry Participation Code 2010.
- 4 Interpretation**
Clause 1.1(1) is amended as follows:
 - (a) by inserting the following definitions in their appropriate alphabetical order:

"island GWAP means the generation weighted average price for an **island** for a **trading period** calculated in accordance with clause 1(2) of Schedule 13.3A

"island scarcity pricing situation means a situation determined to be an island scarcity pricing

situation by the **pricing manager** under clause 13.135A(3)

"island shortage situation means a situation specified in a notice to be an **island** wide shortage by the **system operator** under clause 5(1A) of **Technical Code B** of Schedule 8.3

"national GWAP means the generation weighted average price for both **islands** for a **trading period** calculated in accordance with clause 2(2) of Schedule 13.3A

"national scarcity pricing situation means a situation determined to be a national scarcity pricing situation by the **pricing manager** under clause 13.135A(4)

"national shortage situation means concurrent **island shortage situations** in the North Island and the South Island

"scarcity pricing situation means an **island scarcity pricing situation** or a **national scarcity pricing situation**

"shortage situation means an **island shortage situation** or a **national shortage situation"**

- (b) by amending the definition of **formal notice** by omitting "5(1)" and substituting "5".

5 **Formal notices and responses**

Clause 5 of Technical Code B of Schedule 8.3 is amended as follows:

- (a) by inserting the following subclauses after subclause (1):
 - "(1A) The **system operator** must issue a notice in writing to all **participants** whenever, or as soon as practicable after, an **island** wide instruction to disconnect **demand** has been issued, amended, or revoked under clause 6.
 - "(1B) For the purposes of subclause (1A), an **island** wide instruction is when the electrical or geographical region affected by a notice is all of an **island**.
 - "(1C) The **system operator** must provide any notice issued under subclause (1A) to the **pricing manager** by 0730 hours on the following **trading day**."
- (b) by inserting "or subclause (1A)" after "with subclause (1)" in subclause (2).

6 Contents of each price-responsive schedule and non-response schedule

Clause 13.59(a) is amended by inserting the following subparagraphs after subparagraph (xvii):

"(xviii) the expected deficit quantities for energy, **fast instantaneous reserve**, and **sustained instantaneous reserve** (if any); and

"(xix) whether the **HVDC link** is out of service; and".

7 Information to be published

Clause 13.104(1)(a) is amended by inserting the following subparagraphs after subparagraph (xv):

"(xvi) the expected deficit quantities for energy, **fast instantaneous reserve**, and **sustained instantaneous reserve** (if any); and

"(xvii) whether the **HVDC link** is out of service; and".

8 Purpose of the pricing process

Clause 13.132(a) is amended by inserting "or **shortage situation**" after "a **provisional price situation**".

9 Methodology used to prepare provisional, interim, and final prices

Clause 13.135 is amended by omitting "To" and substituting "Subject to clause 13.135B, to".

10 New clauses 13.135A to 13.135C inserted

The following clauses are inserted after clause 13.135:

"13.135A Notice of scarcity pricing situation

"(1) This clause applies if the **pricing manager**, in relation to a **trading period**, gives notice in accordance with clause 13.144(1) that a **shortage situation** exists.

"(2) If this clause applies, the **pricing manager** must determine whether a **scarcity pricing situation** exists in the relevant **trading period**.

"(3) An **island scarcity pricing situation** exists for an **island** if the **pricing manager** gives notice that an **island shortage situation** existed and the **input information** or revised data shows that—

"(a) for the relevant **trading period**, there is no **binding constraint** in the **island** (excluding the **HVDC link**) in which an **island shortage situation** declaration is made; and

"(b) for the relevant **trading period**—

"(i) the **HVDC link** is in service and—

"(A) if the **island** in which the **island shortage situation** declaration is made is the South Island, the price

- at the Benmore **node** is higher than the price at the Haywards **node**; or
 - "(B) if the **island** in which the **island shortage situation** declaration is made is the North Island, the price at the Haywards **node** is higher than the price at the Benmore **node**; or
 - "(ii) the **HVDC link** is out of service.
 - "(4) A **national scarcity pricing situation** exists if the **pricing manager** gives notice that a **national shortage situation** existed and the **input information** or revised data shows that, for the relevant **trading period**,—
 - "(a) there is no **binding constraint** in either **island**; and
 - "(b) the **HVDC link** is in service and there is no **binding constraint** on the **HVDC link**.
 - "(5) If the **pricing manager** determines that a **scarcity pricing situation** exists, the **pricing manager** must—
 - "(a) **publish** notice of the **scarcity pricing situation**; and
 - "(b) specify in the notice each **trading period** affected by the **scarcity pricing situation**; and
 - "(c) in relation to each **trading period** affected by the **scarcity pricing situation**, specify in the notice whether the **scarcity pricing situation** is an **island scarcity pricing situation** or a **national scarcity pricing situation**.
- "13.135B Methodology to prepare interim prices and interim reserve prices if scarcity pricing situation exists**
- Subject to clause 13.135C, if a **scarcity pricing situation** exists in a **trading period**, the **pricing manager** must—
- "(a) calculate **interim prices** and **interim reserve prices** in the affected **island** or **islands** for that **trading period** in accordance with the methodology set out in Schedule 13.3A; and
 - "(b) **publish interim prices** and **interim reserve prices** for the **trading period** by—
 - "(i) if no **provisional price situation** is notified, 1200 hours in the following **trading day**; or
 - "(ii) if a **provisional price situation** is notified, 2.5 hours after the **provisional price situation** is resolved.

"13.135C Limitation on application of scarcity pricing provisions

Clause 13.135B does not apply—

- (a) in the case of an **island scarcity pricing situation**, if the average **island GWAP** in the previous 336 **trading periods** in the **island** affected by the **scarcity pricing situation** exceeds \$1,000 per **MWh**; or
- (b) in the case of a **national scarcity pricing situation**, if the average **island GWAP** in the previous 336 **trading periods** in either **island** exceeds \$1,000 per **MWh**."

11 Pricing manager to publish interim prices unless provisional price situation notified

- (1) The heading to clause 13.142 is amended by inserting "or shortage situation" after "provisional price situation".
- (2) Clause 13.142(1) is amended as follows:
 - (a) by omitting "**provisional price situation**" and substituting "**provisional price situation or shortage situation**";
 - (b) by inserting "or a **shortage situation**" after "**high spring washer price situation**".

12 Pricing manager to give notice of infeasibility situation, metering situation, or high spring washer price situation

- (1) The heading to clause 13.144 is amended by omitting "or high spring washer price situation" and substituting "high spring washer price situation, or shortage situation".
- (2) Clause 13.144(1) is amended as follows:
 - (a) by inserting "or receives notice of a **shortage situation** in accordance with clause 5(1A) of **Technical Code B** of Schedule 8.3," after "**high spring washer price situation**," in the first place where it appears;
 - (b) by inserting "or notice" after "receives the **input information**";
 - (c) by inserting ", or **shortage situation**" after "**high spring washer price situation**" in paragraphs (a) and (b);
 - (d) by omitting "." in paragraph (c) and substituting "; and";
 - (e) by inserting the following paragraph after paragraph (c):
 - "(d) in relation to each **trading period** affected by a **shortage situation**, specify in the notice whether the **shortage situation** is an **island**

shortage situation or a national shortage situation."

- (3) Clause 13.144(2) is amended by inserting "or **shortage situation**" after "**high spring washer price situation**".

13 Requirements if provisional price situation exists

- (1) The heading to clause 13.146 is amended by inserting "or shortage situation" after "provisional price situation".
- (2) Clause 13.146 is amended by inserting the following subclause after subclause (2):

"(2A) If the **pricing manager** gives notice of a **shortage situation** in accordance with clause 13.144(1), the **pricing manager** must determine whether a **scarcity pricing situation** exists in accordance with clause 13.135A and, if a **scarcity pricing situation** does exist, calculate **interim prices** and **interim reserve prices** in accordance with clause 13.135B."

14 New clause 13.166A inserted

The following clause is inserted after clause 13.166:

"13.166A Pricing manager to recalculate and publish interim prices if infeasibility situation caused by shortage of instantaneous reserve

"(1) If an **infeasibility situation** that has been resolved under this subpart was caused by a shortage of **instantaneous reserve**, the **pricing manager** must recalculate and **publish interim prices** for the relevant **trading period** by adding a virtual provider of **fast instantaneous reserve** and **sustained instantaneous reserve**, at the price as specified in subclause (2), that provides sufficient **fast instantaneous reserve** and **sustained instantaneous reserve** so that prices for **fast instantaneous reserve** and **sustained instantaneous reserve** do not exceed that price.

"(2) The price referred to in subclause (1) for a **trading period** is the greater of—

"(a) 3 times the highest **offer** scheduled in the relevant **island** during the **trading period** according to the revised data provided to the **pricing manager** under this subpart; and

"(b) the highest **reserve offer** scheduled in the relevant **island** during the **trading period** according to the revised data provided to the **pricing manager** under this subpart as follows:

"(i) in the case of an **infeasibility situation** caused by a shortage of **fast instantaneous reserve**, the highest **reserve offer** for **fast instantaneous reserve**:

"(ii) in the case of an **infeasibility situation** caused by a shortage of **sustained instantaneous reserve**, the highest **reserve offer** for **sustained instantaneous reserve**."

15 Pricing manager to publish interim prices

Clause 13.167 is amended by inserting the following paragraph after paragraph (a):

"(aa) when required to do so by clause 13.135B; and".

16 Constrained on situations may occur

Clause 13.202 is amended as follows:

(a) by omitting "A" at the beginning of the clause and substituting "Subject to subclause (2), a".

(b) by inserting the following subclause:

"(2) If the **pricing manager** calculates **interim prices** and **interim reserve prices** in accordance with clause 13.135B for a **trading period**, and the scarcity pricing factor in that calculation is determined under clause 1(3)(c) or clause 2(3)(c) of Schedule 13.3A, a **constrained on situation** is deemed not to have occurred in that **trading period** in the **island** or **islands** in which the **scarcity pricing situation** occurred."

17 New Schedule 13.3A inserted

Schedule 13.3A, which is set out in the Schedule of this Amendment, is inserted after Schedule 13.3.

Schedule
New Schedule 13.3A inserted

cl 17

"Schedule 13.3A
Calculation of interim prices and interim
reserve prices in scarcity pricing situation

cl 13.135B

- "1 Calculation of interim prices and interim reserve prices in island scarcity pricing situation**
- "(1) If the pricing manager determines under clause 13.135A that an island scarcity pricing situation exists in a trading period, the pricing manager must calculate interim prices and interim reserve prices in the relevant island for that trading period in accordance with the following:**
- "(a) calculate initial interim prices and interim reserve prices for the relevant island for that trading period in accordance with clause 13.135:**
 - "(b) calculate the island GWAP in accordance with subclause (2):**
 - "(c) calculate the scarcity pricing factor in accordance with subclause (3):**
 - "(d) calculate interim prices by multiplying the initial interim prices calculated under paragraph (a) by the scarcity pricing factor:**
 - "(e) calculate interim reserve prices by multiplying the initial interim reserve prices calculated under paragraph (a) by the scarcity pricing factor.**
- "(2) The pricing manager must calculate the island GWAP in accordance with the following formula:**

$$GWAP_{ISL} = \frac{\sum_{g=1}^n (Q_g * P_g)}{\sum_{g=1}^n Q_g}$$

where

$GWAP_{ISL}$ is the **island GWAP**

Q_g is the scheduled quantity of generation for **generator g** in the **island**

P_g is the **interim price** at the **node** where **generator g** injects **electricity** in the **island**

- "(3) The scarcity pricing factor is determined as follows:
- "(a) if the **island GWAP** is greater than or equal to \$10,000/MWh and less than or equal to \$20,000/MWh, the scarcity pricing factor is 1:
 - "(b) if the **island GWAP** is less than \$10,000/MWh, the scarcity pricing factor is calculated in accordance with the following formula:

$$X = \frac{\$10,000}{GWAP_{ISL}}$$

where

X is the scarcity pricing factor

$GWAP_{ISL}$ is the **island GWAP**

- "(c) if the **island GWAP** is greater than \$20,000/MWh, the scarcity pricing factor is calculated in accordance with the following formula:

$$X = \frac{\$20,000}{GWAP_{ISL}}$$

where

X is the scarcity pricing factor

$GWAP_{ISL}$ is the **island GWAP**

"2 Calculation of interim prices in national scarcity pricing situation

- "(1) If the **pricing manager** determines under clause 13.135A that a **national scarcity pricing situation** exists in a **trading period**, the **pricing manager** must calculate **interim prices** and **interim reserve prices** for that **trading period** in accordance with the following:
 - "(a) calculate initial **interim prices** and **interim reserve prices** for that **trading period** in accordance with clause 13.135:

- "(b) calculate the **national GWAP** in accordance with subclause (2):
 - "(c) calculate the scarcity pricing factor in accordance with subclause (3):
 - "(d) calculate **interim prices** by multiplying the initial **interim prices** calculated under paragraph (a) by the scarcity pricing factor:
 - "(e) calculate **interim reserve prices** by multiplying the initial **interim reserve prices** calculated under paragraph (a) by the scarcity pricing factor.
- "(2) The **pricing manager** must calculate the **national GWAP** in accordance with the following formula:

$$GWAP_{NAT} = \frac{\sum_{g=1}^n (Q_g * P_g)}{\sum_{g=1}^n Q_g}$$

where

$GWAP_{NAT}$ is the **national GWAP**

Q_g is the scheduled quantity of generation for **generator g** in both **islands**

P_g is the **interim price** at the **node** where **generator g** injects **electricity** in both **islands**

- "(3) The scarcity pricing factor is determined as follows:
- "(a) if the **national GWAP** is greater than or equal to \$10,000/MWh and less than or equal to \$20,000/MWh, the scarcity pricing factor is 1:
 - "(b) if the **national GWAP** is less than \$10,000/MWh, the scarcity pricing factor is calculated in accordance with the following formula:

$$X = \frac{\$10,000}{GWAP_{NAT}}$$

where

X is the scarcity pricing factor

$GWAP_{NAT}$ is the **national GWAP**

"(c) if the **national GWAP** is greater than \$20,000/MWh, the scarcity pricing factor is calculated in accordance with the following formula:

$$X = \frac{\$20,000}{GWAP_{NAT}}$$

where

X is the scarcity pricing factor

$GWAP_{NAT}$ is the **national GWAP**".

Explanatory Note

This note is not part of the Code Amendment, but is intended to indicate its general effect.

This amendment to the Electricity Industry Participation Code 2010 comes into force on 1 June 2013.

This amendment amends Parts 1, 8, and 13 of the Electricity Industry Participation Code 2010 to implement the Electricity Authority's scarcity pricing proposal.

Date of notification in the *Gazette*: 28 October 2011.