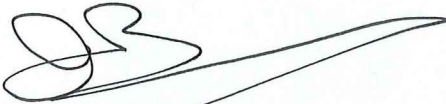


Electricity Industry Participation Code Amendment (Wind Offer Arrangements) 2019

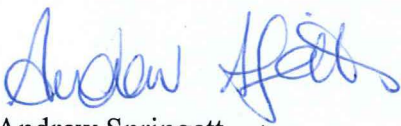
Under section 38 of the Electricity Industry Act 2010, and having complied with section 39 of that Act, I make the following amendments to the Electricity Industry Participation Code 2010.

At Wellington on the 29th day of July 2019



Dr Thomas Brent Layton
Chair
Electricity Authority

Certified in order for signature:



Andrew Springett
Senior Legal Counsel
Electricity Authority



Tony Dellow
Partner
Buddle Findlay

25 July 2019

24 July 2019

Contents

1	Title	2
2	Commencement	2
3	Code amended	2
4	Clause 1.1 amended (Interpretation)	2
5	Clause 13.9 amended (Information that offers must contain)	3
6	Clause 13.9A amended (Offer not to exceed capability)	3
7	New clause 13.9B inserted 13.9B Offer requirements for intermittent generators	3
8	Clause 13.12 amended (Offers may contain up to 5 price bands)	3
9	Clause 13.15 amended (How price is to be specified in bids or offers)	4
10	Clause 13.17 amended (Offers may be revised)	4
11	Clause 13.18 amended (When revised offer to be submitted)	4
12	Clause 13.18A replaced (Intermittent generators to submit revised offers) 13.18A Intermittent generators to submit revised forecast of generation potential every trading period in last 2 hours	4
13	Clause 13.19 amended (When revised offers may be submitted during gate closure period)	4
14	Clause 13.20 amended (System operator advised of revised nominated bids or offers in certain circumstances)	4
15	Clause 13.21 amended (Authority informed of revised nominated dispatch bid or offer during gate closure period)	4
16	Clause 13.58A amended (Inputs for price-responsive schedule and non- response schedule)	5

17	Clause 13.71 amended (System operator to use certain things)	5
18	Clause 13.73 amended (Content of dispatch instructions to generators, ancillary service agents, and dispatchable load purchasers)	5
19	Clause 13.82 amended (Dispatch instructions to be complied with)	6
20	New clause 13.86A inserted 13.86A Intermittent generators must not substantially reduce generation	6
21	Clause 13.97 amended (Grid emergency situations)	6
22	Clause 13.104 amended (System operator to make information available)	6
23	Clause 13.136 amended (Generators to provide half-hour metering information)	7
24	Clause 13.137 amended (Generators to provide half-hour metering information for unoffered and intermittent generation, and type B industrial co-generation)	7
25	New clause 13.137A inserted 13.137A Offered grid-connected intermittent generators to provide half-hour metering information	7
26	Clause 13.138 amended (Generator's half-hour metering information to be adjusted for losses)	7
27	Clause 13.141 amended (Pricing manager to use certain input information)	7
28	New clause 13.192A inserted 13.192A No constrained off situation for intermittent generating stations	8
29	Schedule 13.1, Form 2 amended	8
30	Schedule 13.3, clause 6 amended	9
31	Schedule 13.3, clause 7 amended	9
32	Schedule 13.3, clause 9A amended	9

Amendment

1 Title

This is the Electricity Industry Participation Code Amendment (Wind Offer Arrangements) 2019.

2 Commencement

This amendment comes into force at 12:00pm on 19 September 2019.

3 Code amended

This amendment amends the Electricity Industry Participation Code 2010.

4 Clause 1.1 amended (Interpretation)

(1) In clause 1.1(1), definition of **bona fide physical reason**, insert after paragraph (b):

“(ba) in relation to an **intermittent generator**, a situation in which—

“(i) wind conditions prevent the **intermittent generator** from generating at the level expected; or

“(ii) the **intermittent generator** reduces the output of an **intermittent generating station**—

“(A) to prevent an **un-modelled transmission asset** from exceeding its ratings;
or

“(B) in order to comply with an automated signal to maintain frequency; or

“(C) in light of reasonably unforeseeable circumstances that require the output of the **intermittent generating station** to be reduced to enable the **intermittent generator** to comply with the conditions of a resource consent or other law; or

“(D) in anticipation of the expected onset of a weather event that would be likely to cause the **intermittent generating station's** asset protection systems to shut down assets forming part of the **intermittent generating station**; and”.

- (2) In clause 1.1(1), definition of **gate closure period**, delete paragraph (a)(ii).
- (3) In clause 1.1(1), definition of **metering situation**, paragraph (a)(iv)—
 - (a) before “**intermittent generating station**”, insert “offered”; and
 - (b) after “**intermittent generating station**”, delete “with a **point of connection** to the **grid**”.
- (4) In clause 1.1(1), definition of **offer stack**, after “clause 13.141(1)(c)”, insert “, adjusted so that for each **intermittent generating station**, the total offered quantity is not greater than the potential output for the **intermittent generating station**, determined in accordance with clause 13.141(1)(caa)”.
- (5) In clause 1.1(1), insert in their appropriate alphabetical order:
“**flagged**, in relation to a **dispatch instruction** issued to an **intermittent generator**, means an indication on the **dispatch instruction** that it is a **dispatch instruction** of the kind described in clause 13.73(1A), and **flag** has a corresponding meaning

“**forecast of generation potential** means, in relation to an **intermittent generating station**, an **intermittent generator's** estimate of the **electricity** (specified in **MW**) it will generate during a **trading period**, if—

- “(a) the **system operator** issues **dispatch instructions** to the **intermittent generator** for the **intermittent generating station** for the **trading period**; and
- “(b) none of the **dispatch instructions** are **flagged** in accordance with clause 13.73(1A)

“**un-modelled transmission asset** means a **transmission asset** for which the **system operator's dispatch** optimisation model does not include **asset ratings** as a **constraint**”.

5 **Clause 13.9 amended (Information that offers must contain)**

In clause 13.9(c), delete sub-paragraphs (ii) and (iii).

6 **Clause 13.9A amended (Offer not to exceed capability)**

In clause 13.9A, insert as subclause (2):

“(2) Subclause (1) does not apply to an **intermittent generator**.”

7 **New clause 13.9B inserted**

After clause 13.9A, insert:

“**13.9B Offer requirements for intermittent generators**

Each **offer** submitted by an **intermittent generator** must, in relation to the **generating plant** that is the subject of the **offer**,—

- “(a) not exceed the **nameplate capacity** of the **generating plant**; and
- “(b) include a **forecast of generation potential** for the **trading period** to which the **offer** relates.”

8 **Clause 13.12 amended (Offers may contain up to 5 price bands)**

In clause 13.12,—

- (a) after “13.9”, delete “(c) and ”; and

- (b) after “**trading period**”, insert:
“, with the 1st price band containing the lowest price offered, and each subsequent band having a higher price than the band preceding it”; and
- (c) delete “The price offered in each band must increase progressively from band to band as the aggregate quantity increases.”.

9 Clause 13.15 amended (How price is to be specified in bids or offers)

In clause 13.15, after “13.9”, delete “(c) and ”.

10 Clause 13.17 amended (Offers may be revised)

In clause 13.17(3), delete “13.18A,”.

11 Clause 13.18 amended (When revised offer to be submitted)

(1) In clause 13.18(1),—

- (a) after “A **generator**”, insert “, other than an **intermittent generator**,”; and
- (b) after “the **system operator** if”, insert “, at any time before the **trading period** to which the **offer** relates,”.

(2) In clause 13.18(1A), after “A **generator**”, insert “, other than an **intermittent generator**,”.

(3) Replace clause 13.18(3) with:

“(3) Subclause (1) does not apply after the beginning of the **trading period** to which an **offer** relates.”

12 Clause 13.18A replaced (Intermittent generators to submit revised offers)

Replace clause 13.18A with:

“13.18A Intermittent generators to submit revised forecast of generation potential every trading period in last 2 hours

“(1) During the 2 hours immediately preceding the **trading period** to which an **offer** relates, each **intermittent generator** must submit to the **system operator** a revised **forecast of generation potential** for the relevant **intermittent generating station** for the **trading period** at a frequency of at least 1 revised forecast per **trading period**.

“(2) A revised **forecast of generation potential** submitted under subclause (1) must be based on a resource persistence model, unless otherwise agreed with the **Authority**.

“(3) For the purposes of this clause, a resource persistence model means a method for producing a forecast of the **intermittent generator's** generation for a **trading period**, in MW, that is derived from the expected availability and capability of **generating plant** forming all or part of the relevant **intermittent generating station**, on the assumption that the wind (or other resource) conditions at the time at which the forecast is prepared will persist throughout the **trading period** to which the forecast relates.”

13 Clause 13.19 amended (When revised offers may be submitted during gate closure period)

In clause 13.19(1), after “A **generator**”, insert “, other than an **intermittent generator**,”.

14 Clause 13.20 amended (System operator advised of revised nominated bids or offers in certain circumstances)

In clause 13.20(3), replace “**offer**” with “**forecast of generation potential**”.

15 Clause 13.21 amended (Authority informed of revised nominated dispatch bid or offer during gate closure period)

In clause 13.21(1B), replace “**offer**” with “**forecast of generation potential**”.

16 Clause 13.58A amended (Inputs for price-responsive schedule and non-response schedule)

- (1) In clause 13.58A(1), after (a), insert:
“(aa) the potential output of all **intermittent generating stations**, determined using the most recent **forecast of generation potential** for each **intermittent generating station** submitted under clause 13.18A; and”.
- (2) In clause 13.58A(2), after (a), insert:
“(aa) the potential output of all **intermittent generating stations**, determined using the most recent **forecast of generation potential** for each **intermittent generating station** submitted under clause 13.18A; and”.

17 Clause 13.71 amended (System operator to use certain things)

- (1) In clause 13.71(1)(b), delete “(except for revised **offers** submitted by an **intermittent generator** under clause 13.19(1)(a)(iii))”.
- (2) Replace clause 13.71(1)(c) with:
“(c) the following ramp rates:
“(i) for each **intermittent generator**, the ramp rate agreed between the **intermittent generator** and the **system operator**;
“(ii) for any other **generator**, the ramp rate of the **generator** (if any); and”.
- (3) Replace clause 13.71(1)(e) with:
“(ea) the potential output of all **intermittent generating stations**, determined in accordance with subclause (3); and”.
- (4) After clause 13.72(2), insert:
“(3) The **system operator** must, in determining the potential output of an **intermittent generating station** for the purposes of subclause (1)(ea), use the following information:
“(a) if the most recent **dispatch instruction** to the relevant **intermittent generator** for the **intermittent generating station** was not **flagged**, the actual output in MW of the **intermittent generating station**;
“(b) if the most recent **dispatch instruction** to the relevant **intermittent generator** for the **intermittent generating station** was **flagged**, the greater of—
“(i) the **forecast of generation potential** specified in the **intermittent generator's final offer** for the relevant **intermittent generating station** submitted under clause 13.18A; and
“(ii) the actual output in MW of the **intermittent generating station**;
“(c) if the **intermittent generator** and the **system operator** have agreed in writing that an alternative estimate may be provided, the alternative estimate of the potential output of the **intermittent generating station** provided by the relevant **intermittent generator**.”

18 Clause 13.73 amended (Content of dispatch instructions to generators, ancillary service agents, and dispatchable load purchasers)

After clause 13.73(1), insert:

- “(1A) The **system operator** must include an indication (**flag**) in each **dispatch instruction** it issues to an **intermittent generator** under clause 13.72(1)(a) if the **intermittent generator** is **dispatched** for a **trading period** at a quantity less than the potential output of the relevant **intermittent generating station**.

“(1B) For the purposes of subclause (1A), the potential output of an **intermittent generating station** is the potential output for the relevant **intermittent generating station** determined by the **system operator** under clause 13.71(3).”

19 Clause 13.82 amended (Dispatch instructions to be complied with)

Replace clause 13.82(2)(d) with:

“(d) the **participant** is an **intermittent generator** and the **system operator** has not **flagged** the **dispatch instruction** in accordance with clause 13.73(1A); or”.

20 New clause 13.86A inserted

After clause 13.86, insert:

“13.86A Intermittent generators must not substantially reduce generation

“(1) An **intermittent generator** must not generate **electricity** during a **trading period** at a rate that is more than 30MW below the **forecast of generation potential** specified in the **intermittent generator's final offer** for the **trading period** submitted under clause 13.18A, unless—

“(a) the **intermittent generator** reduces the output of the relevant **intermittent generating station** in order to comply with a **flagged dispatch instruction** under clause 13.73(1A), or any other instruction issued by the **system operator**; or

“(b) the **intermittent generator** has a **bona fide physical reason**.

“(2) If an **intermittent generator** generates **electricity** during a **trading period** at a rate that is below the rate specified in subclause (1) for 1 or more **trading periods** in a calendar month, other than for one of the reasons specified in subclause (1)(a), the **intermittent generator** must provide a report to the **Authority** no later than the end of the next calendar month.

“(3) A report provided to the **Authority** under subclause (2) must specify—

“(a) the **trading periods** in relation to which the **intermittent generator** generated **electricity** at a rate that was below the rate specified in subclause (1); and

“(b) in relation to each such **trading period**, an explanation of the reason for the **intermittent generator** generating **electricity** at a rate that was below the rate specified in subclause (1); and

“(c) if the **intermittent generator** considers that one of the reasons in subclause (1) applies in respect of any of the **trading periods** specified in the report, the **intermittent generator's** reasons for that view.”

21 Clause 13.97 amended (Grid emergency situations)

(1) In clause 13.97(2)(a), delete “, other than an **intermittent generator**,”.

(2) After clause 13.97(2), insert:

“(3) Subclause (2)(a) does not apply in relation to the **MW** specified in the **forecast of generation potential** specified in any of the **offers** made by an **intermittent generator**.”

22 Clause 13.104 amended (System operator to make information available)

In clause 13.104(1)(a)(iii), after “**forecast marginal location factors**” insert, “, and adjusted so that, for each **intermittent generating station**, the total offered quantity is no greater than the **forecast of generation potential** for that **intermittent generating station**, being the

forecast of generation potential used as an input into the **price-responsive schedule** or the **non-response schedule** (whichever applies)".

23 Clause 13.136 amended (Generators to provide half-hour metering information)

- (1) In the heading to clause 13.136, replace "**Generators**" with "**Offered embedded generators**".
- (2) In clause 13.136(1), delete "that is subject to a **dispatch instruction**".
- (3) In clause 13.136(2),—
 - (a) replace "To avoid doubt, subclause" with "Subclause"; and
 - (b) revoke paragraph (b)(i).

24 Clause 13.137 amended (Generators to provide half-hour metering information for unoffered and intermittent generation, and type B industrial co-generation)

- (1) Replace the heading to clause 13.137 with "**Unoffered grid-connected generators and grid-connected type B industrial co-generation to provide half-hour metering information**".
- (2) Revoke clause 13.137(1)(b).

25 New clause 13.137A inserted

After clause 13.137, insert:

"13.137A Offered grid-connected intermittent generators to provide half-hour metering information

- "(1) Using an **approved system** or by written notice, each **intermittent generator** must, in relation to an **intermittent generating station** with a **point of connection** to the **grid**, give the relevant **grid owner half-hour metering information** for the **intermittent generating station**.
- "(2) This clause does not apply to **unoffered generation**.
- "(3) Each **intermittent generator** must give the relevant **grid owner** the **half-hour metering information** required under this clause in accordance with the requirements of Part 15 for the collection of the **generator's volume information**.
- "(4) If the **half-hour metering information** is not available, the **intermittent generator** must give the relevant **grid owner** a reasonable estimate of such data."

26 Clause 13.138 amended (Generator's half-hour metering information to be adjusted for losses)

In clause 13.138(1), replace "and 13.137" with ", 13.137, and 13.137A".

27 Clause 13.141 amended (Pricing manager to use certain input information)

- (1) Replace clause 13.141(1)(b)(i) with:

"(i) the **demand half-hour metering information** described as L_{MA} below must be calculated as follows:

$$L_{MA} = OEG + L_{MX} - L_{DCLS} \text{ (for a grid exit point)}$$

$$L_{MA} = OEG - L_{MI} - L_{DCLS} \text{ (for a grid injection point)}$$

$$L_{MA} = L_{MX} - L_{DCLS} - UGCG \text{ (for unoffered generation from a generating station with a point of connection to the grid, and/or a type B industrial co-generating station with a point of connection to the grid)}$$

where

- L_{MA} is the adjusted quantity of **electricity** measured in **MWh** by a **metering installation** at a **grid exit point** or **grid injection point**
- L_{MX} is the unadjusted **half-hour metering information** for the quantity of **electricity** measured in **MWh** at a **grid exit point**
- L_{MI} is the unadjusted **half-hour metering information** for the quantity of **electricity** measured in **MWh** at a **grid injection point**
- L_{DCLS} is the adjusted **half-hour metering information** for the quantity of **electricity** measured in **MWh** used by a **dispatch-capable load station** for the **trading periods** that the **system operator** listed under clause 13.138B
- OEG is the adjusted **half-hour metering information** given to the relevant **grid owner** under clause 13.136
- UGCG is the information given to the relevant **grid owner** under clause 13.137:”.

(2) After clause 13.141(1)(c), insert:

“(caa) the potential output of a **dispatched intermittent generating station** for each **trading period**, determined as follows:

“(i) if **dispatch instructions** relating to the **intermittent generating station** were not **flagged** for more than half of the **trading period**, using the relevant adjusted **half-hour metering information** for the **trading period** given to the relevant **grid owner** under clause 13.136 or clause 13.137A:

“(ii) if **dispatch instructions** relating to the **intermittent generating station** were **flagged** for more than half of the **trading period**, using the greater of—

“(A) the **forecast of generation potential** specified in the **intermittent generator's final offer** for the relevant **intermittent generating station** for the **trading period** submitted under clause 13.18A; and

“(B) the relevant adjusted **half-hour metering information** for the **trading period** given to the relevant **grid owner** under clause 13.136 or clause 13.137A:”.

(3) Revoke clause 13.141(1AA)(a).

28 New clause 13.192A inserted

After clause 13.192, insert:

“**13.192A No constrained off situation for intermittent generating stations**

Despite clause 13.192, no **constrained off situation** arises in relation to an **intermittent generating station**.”

29 Schedule 13.1, Form 2 amended

In Schedule 13.1, Form 2, after “Band 1: From 0 MW to _____ MW @ \$ _____ per MWh”, insert:

“Band 2: **plus** _____ MW @ \$ _____ per MWh

“Band 3: **plus** _____ MW @ \$ _____ per MWh

“Band 4: **plus** _____ MW @ \$ _____ per MWh

“Band 5: **plus** _____ MW @ \$ _____ per MWh

“Forecast of generation potential: _____ MW”.

30 Schedule 13.3, clause 6 amended

- (1) In Schedule 13.3, clause 6, after paragraph (a)(iv) insert:
“(v) the potential output of a **dispatched intermittent generating station** determined in accordance with subclause (2); and”.
- (2) In Schedule 13.3, clause 6, insert as subclauses (2) and (3):
“(2) For the purposes of subclause (1)(a)(v), the **system operator** must determine the potential output of a **dispatched intermittent generating station** using the following information:
“(a) if the relevant **dispatch instruction** relating to the **intermittent generating station** is not **flagged**, the output of the **intermittent generating station** for the **real time pricing period** according to the **SCADA 5 minute average** (specified in **MW**); or
“(b) if the relevant **dispatch instruction** relating to the **intermittent generating station** is **flagged**, the greater of—
“(i) the **forecast of generation potential** specified in the relevant **intermittent generator's final offer** for the relevant **intermittent generating station** for the **trading period** submitted under clause 13.18A; and
“(ii) the output of the **intermittent generating station** for the **real time pricing period** according to the **SCADA 5 minute average** (specified in **MW**); or
“(c) if the **intermittent generator** and the **system operator** have agreed in advance that an alternative estimate may be provided, the alternative estimate of the potential output of the **intermittent generating station** for the **real time pricing period** provided by the relevant **intermittent generator**.
“(3) For the purposes of subclause (2), relevant **dispatch instruction** means—
“(a) the first **dispatch instruction** issued for the **real time pricing period** that relates to the **intermittent generating station**; or
“(b) if no **dispatch instruction** was issued for the **real time pricing period** that relates to the **intermittent generating station**, the most recent **dispatch instruction** that relates to the **intermittent generating station**.”

31 Schedule 13.3, clause 7 amended

In Schedule 13.3, clause 7,—

- (a) revoke paragraphs (a)(i), (a)(ii), and (d); and
(b) replace paragraph (e) with:
“(e) the potential output of all **intermittent generating stations**, determined in accordance with clause 13.71(3); and”.

32 Schedule 13.3, clause 9A amended

- (1) In Schedule 13.3, clause 9A(b), replace “.” with “; and”.
- (2) In Schedule 13.3, after clause 9A(b), insert:
“(c) the modelling system schedules **electricity** generation for each **intermittent generating station** in a **trading period** at a level that is no higher than the potential output of the **intermittent generating station**, determined as follows:

- “(i) in relation to the **price-responsive schedule**, in accordance with clause 13.58A(1)(aa):
- “(ii) in relation to the **non-response schedule**, in accordance with clause 13.58A(2)(aa):
- “(iii) in relation to the **dispatch schedule**, in accordance with clause 13.71(3):
- “(iv) in relation to the **input information** referred to in clause 13.141, in accordance with clause 13.141(1)(caa):
- “(v) in relation to the schedule of **real time prices**, in accordance with clause 6(2).”

Explanatory Note

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

This amendment to the Electricity Industry Participation Code 2010 (Code) comes into force at 12:00pm on 19 September 2019.

The amendment makes changes to Part 1 and Part 13 of the Code to:

- (a) enable wind generators to withdraw generation in an efficient, centrally coordinated way when the spot market price is below their short run marginal cost; and
- (b) prevent wind generators withdrawing large amounts of generation in ways that are not well coordinated.

Date of notification in the *Gazette*: 1 August 2019