

Electricity Industry Participation Code Amendment (Common Quality Related Amendments) 2025

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

At Sydney, Australia on the 26 day of March 2025



Anna Kominik
Chair
Electricity Authority

Certified in order for signature:



Nicholai Mumford
Senior Legal Counsel
Electricity Authority

19 March 2025



Nick Crang
Partner
Duncan Cotterill

19 March 2025

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Amendment

1 Title

This is the Electricity Industry Participation Code Amendment (Common Quality Related Amendments) 2025.

2 Commencement

This amendment comes into force on 1 May 2025.

3 Code amended

This amendment amends the Electricity Industry Participation Code 2010.

4 Clause 1.1 amended (Interpretation)

(1) In clause 1.1(1), replace the definition of **causer** with:

“**causer**, in relation to an **under-frequency event**, means—

“(a) if the **under-frequency event** is caused by an interruption to or reduction of **electricity** supply, or an increase in **electricity demand**, from a single **participant’s asset** or **assets**, the **participant**, unless another **participant’s** act or omission or property causes the interruption to or reduction of **electricity** supply or the increase in **electricity demand**, in which case the other **participant** is the causer; or

“(b) if the **under-frequency event** is caused by more than 1 interruption to or reduction of **electricity** supply or increase in **electricity demand**, the **participant** who, in accordance with paragraph (a), would be the **causer** of the **under-frequency event** if it had been caused by the first in time of the interruption to or reduction of **electricity** supply or increase in **electricity demand**; but

“(c) if an interruption to or reduction of **electricity** supply, or an increase in **electricity demand**, occurs in order to comply with this Code, the interruption to or reduction of **electricity** supply or the increase in **electricity demand** must be disregarded for the purposes of determining the **causer** of the **under-frequency event**”.

- (2) In clause 1.1(1), definition of **control system**:
 - (a) replace “**MW**” with “**active power**” in each place; and
 - (b) delete “, including speed governors and exciters”.
- (3) In clause 1.1(1), insert in its appropriate alphabetical order:

“**dynamic reactive power compensation device** means a device, other than a **generating unit** or synchronous condenser, that normally is provided specifically to inject or absorb **reactive power** and which includes static synchronous compensators, static synchronous series compensators, thyristor controlled series devices and thyristor controlled shunt devices”.
- (4) In clause 1.1(1), definition of **reactive capability**, replace “Static Var Compensators, capacitors and synchronous condensers” with “capacitors, reactors, synchronous condensers and **dynamic reactive power compensation devices**”.
- (5) In clause 1.1(1), replace the definition of **under-frequency event** with:

“**under-frequency event** means—

 - “(a) an interruption to or reduction of **electricity** injected into the **grid**; or
 - “(b) an interruption to or reduction of **electricity** injected from the **HVDC link** into the South Island **HVDC injection point** or the North Island **HVDC injection point**; or
 - “(c) an increase in the **demand** for **electricity** supplied by the **grid** at a **point of connection** with the **grid**; or
 - “(d) an increase in the **demand** for **electricity** at the point at which **electricity** is supplied to the South Island **HVDC injection point** or to the North Island **HVDC injection point**—

“if there is, within any 60 second period, an aggregate change to the **injection** of or **demand** for **electricity** in excess of 60 MW (being the aggregate of the net changes to the **injection** of or **demand** for **electricity** (expressed in MW) experienced at **points of connection** with the **grid** and **HVDC injection points** by reason of paragraphs (a) to (d)), and such change causes the frequency on the **grid** (or any part of the **grid**) to fall below 49.25 Hz (as determined by **system operator** frequency logging)”.

5 New clause 8.1B inserted (Application of this Part to energy storage systems)

After clause 8.1, insert:

“8.1B Application of this Part to energy storage systems

- “(1) For the purposes of this Part, the owner or operator of an **energy storage system** with a capacity equal to or greater than the threshold in clause 8.21(1), in relation to that **energy storage system**, is required to comply only with the obligations under this Part that apply to a **generator** or **embedded generator**, regardless of whether the **energy storage system** is discharging or charging.
- “(2) For the avoidance of doubt, the thresholds in clauses 8.21(1) and 8.21(2) apply to an **energy storage system** as if the **energy storage system** is a **generator**.”.

6 Clause 8.19 amended (Contributions to frequency support in under-frequency events)

In clause 8.19, after subclause (5), insert:

- “(6) For the purposes of subclause (5), the owner or operator of an **energy storage system** with a capacity equal to or greater than the threshold in clause 8.21(1) is not considered a **connected asset owner** in relation to that **energy storage system**.”.

7 Clause 8.21 amended (Excluded generating stations)

In clause 8.21(2), after “MW”, insert “(alternating current (a.c.) capacity)”.

8 Clause 8.24 amended (Load shedding obligations to support voltage)

In clause 8.24, after subclause (2), insert:

“(3) For the purposes of subclause (2), the owner or operator of an **energy storage system** with a capacity equal to or greater than the threshold in clause 8.21(1) is not considered a **connected asset owner** in relation to that **energy storage system**.”.

9 Clause 8.60 amended (System operator must investigate causer of under-frequency event)

- (1) In clause 8.60(1), replace “, every **generator, grid owner** and any other **participant**” with “and every **participant**”.
- (2) In clause 8.60(5)(a), replace “**generator or grid owner**” with “**participant**”.

10 Clause 8.61 amended (Authority to determine causer of under-frequency event)

- (1) In clause 8.61, replace “**generator or grid owner**” with “**participant**” in each place.
- (2) In clause 8.61(4), delete “**generator, grid owner** and other”.
- (3) In clause 8.61(5), delete “**generators, grid owners, and other**”.

11 Clause 8.64 amended (Event costs allocated to event causers)

- (1) Replace the heading of clause 8.64 with “**Allocating event costs to event causers where electricity supply interrupted or reduced**”.
- (2) In clause 8.64,—
 - (a) after “**under-frequency event**”, insert “where the cause of the **under-frequency event** is an interruption to or reduction of **electricity**”; and
 - (b) replace “electric power (expressed in **MW**) lost” with “loss of electric power (expressed in **MW**)”; and
 - (c) after “excluding any loss”, insert “of electric power (expressed in **MW**)”.

12 New clause 8.64A inserted (Allocating event costs to event causers where electricity demand increase)

After clause 8.64, insert:

“8.64A Allocating event costs to event causers where electricity demand increase

“The **event charge** payable by the **causer** of an **under-frequency event** where the cause of the **under-frequency event** is an increase in **electricity demand** (referred to as “Event e” below) must be calculated in accordance with the following formula:

$$EC = ECR * (\sum_y (INC_{ye} \text{ for all } y) - CON_D)$$

“where

- “EC is the **event charge** payable by the **causer**
“ECR is \$1,250 per **MW**
“CON_D is 60 **MW**

“INC_{ye} is the increase in **electricity demand** (expressed in **MW**) at point y by reason of Event e (being the net increase in the **demand** for **electricity** (expressed in **MW**) experienced at point y by reason of Event e) excluding any increase in **electricity demand** (expressed in **MW**) at point y by reason of secondary Event e

“y is a **point of connection** or the point at which **electricity** is supplied to the **HVDC link** at which an increase in **electricity demand** occurs by reason of Event e.”.

13 Clause 8.65 amended (Rebates paid for under-frequency events)

In clause 8.65, after “under clause 8.64”, insert “or under clause 8.64A”.

14 Clause 8.66 amended (Payments and rebates)

In clause 8.66, replace “8.59 and 8.64” with “8.59, 8.64 and 8.64A”.

15 Schedule 8.3, Technical Code A, clause 2 amended

(1) In Schedule 8.3, Technical Code A, after clause 2(2), insert:

“(2A) For **asset owners** that are **generators**, the obligation to provide the **system operator** with an **asset capability statement**, and any other information reasonably required by the **system operator**, applies only to **generators** with a **generating unit** with rated net maximum capacity equal to or greater than the threshold specified in clause 8.21(2).”.

(2) In Schedule 8.3, Technical Code A, replace clause 2(5) with:

“(5) Each **asset owner** must provide the **system operator** with an **asset capability statement** in the form from time to time **published** by the **system operator** for each **asset** that—

“(a) is—

“(i) proposed to be connected, or is connected to, or forms part of the **grid**; or

“(ii) proposed to be connected, or is connected directly or indirectly to a **local network**; and

“(b) forms part or all of a **generating unit** with rated net maximum capacity equal to or greater than the threshold specified in clause 8.21(2) at the **point of connection** to the **network**.”.

(3) In Schedule 8.3, Technical Code A, after clause 2(5), insert:

“(5A)The **asset capability statement** must—

“(a) include all information reasonably requested by the **system operator** so as to allow the **system operator** to determine the limitations in the operation of the **asset** that the **system operator** needs to know for the safe and efficient operation of the **grid**; and

“(b) include any modelling data for the planning studies, as reasonably requested by the **system operator**; and

“(c) be updated and reissued to the **system operator** as information and design development progresses through the study, design, manufacture, testing and **commissioning** phases; and

“(d) be complete and up to date before the **commissioning** of the **asset**; and

“(e) be complete and up to date at all times while the **asset** is—

“(i) connected to, or forms part of, the **grid**; or

“(ii) connected directly or indirectly to a **local network**.”.

16 Schedule 8.3, Technical Code A, clause 5 amended

- (1) In Schedule 8.3, Technical Code A, clause 5(1), replace “speed governor” with “speed governor and/or frequency **control system**” in each place.
- (2) In Schedule 8.3, Technical Code A, clause 5(2)(a), replace “an excitation and voltage control system” with “a voltage **control system**”.

17 Schedule 8.3, Technical Code A, Appendix B, clause 1 amended

- (1) In Schedule 8.3, Technical Code A, Appendix B, revoke clause 1(3).
- (2) In Schedule 8.3, Technical Code A, Appendix B, after clause 1(2), insert:

“(4) Each **asset owner** with one or more **generating units** commissioned before 1 January 2016 for which wind is the primary power source must complete the first of each test required in this Appendix for those **generating units** no later than 31 December 2028.”

18 Schedule 8.3, Technical Code A, Appendix B, clause 2 amended

- (1) In Schedule 8.3, Technical Code A, Appendix B, clause 2, before “test the trip frequencies” insert “for **generating units** with no inverter,” in each place.
- (2) In Schedule 8.3, Technical Code A, Appendix B, after clause 2(b), insert:

“(ba) for **generating units** with an inverter, test the trip frequencies and trip time delays of non-self monitoring digital over-frequency protection settings and non-self monitoring digital under-frequency protection settings for the **generating units** at least once every 4 years; and”.
- (3) In Schedule 8.3, Technical Code A, Appendix B, after clause 2(c), insert:

“(ca) for **generating units** with an inverter, test the trip frequencies and trip time delays of self monitoring digital over-frequency protection settings and self monitoring digital under-frequency protection settings for the **generating units** at least once every 10 years; and”.
- (4) In Schedule 8.3, Technical Code A, Appendix B, clause 2(d), replace “paragraphs (a) to (c)” with “paragraphs (a), (b), (ba), (c) or (ca)”.
- (5) In Schedule 8.3, Technical Code A, Appendix B, clause 2(e), replace “paragraphs (a) to (c)” with “paragraphs (a), (b), (ba), (c) or (ca)”.

19 Schedule 8.3, Technical Code A, Appendix B, clause 3 amended

- (1) In Schedule 8.3, Technical Code A, Appendix B, clause 3, replace the heading with “**Generating unit frequency control system**”.
- (2) In Schedule 8.3, Technical Code A, Appendix B, replace clause 3(a) with:

“(a) for each of its **generating units** with no inverter, test the response of the **generating unit’s** mechanical or analogue speed governor and/or mechanical or analogue frequency **control system** at least once every 5 years; and”.
- (3) In Schedule 8.3, Technical Code A, Appendix B, replace clause 3(b) with:

“(b) for each of its **generating units** with no inverter, test the response of the **generating unit’s** digital or electro-hydraulic frequency **control system** at least once every 10 years; and”.
- (4) In Schedule 8.3, Technical Code A, Appendix B, after clause 3(b), insert:

“(ba) for its **generating units** with an inverter test the response of each frequency **control system** used for those **generating units** at least once every 10 years; and

“(bb) unless agreed otherwise with the **system operator**, for its **generating units** with an inverter test the response of each frequency **control system** used for those **generating units** within 3 months of a change to the control settings and/or firmware of the frequency **control system** (where the change to the firmware has the potential to materially affect the performance of the frequency response of the **generating units** or **generating station** that the **generating units** are part of); and”.

- (5) In Schedule 8.3, Technical Code A, Appendix B, clause 3(c),—
- (a) replace “(a) or (b)” with “(a), (b), (ba) or (bb)”;
 - (b) replace “governor system response data” with “governor or frequency **control system** response data”; and
 - (c) in paragraph (i), replace “governor” with “frequency **control system**”; and
 - (d) in paragraph (ii), before “a block diagram”, insert “for **generating units** with a turbine,”;
and
 - (e) after paragraph (ii), insert:
“(iia) for **generating units** with a power converter, a block diagram showing the mathematical representation of the power converter and its electrical control;
and”; and
 - (f) in paragraph (iii), replace “block diagrams.” with “block diagrams; and”;
and
 - (g) after paragraph (iii), insert:
“(iv) for **generating units** with an inverter, a verified set of control settings and relevant firmware version identifiers for the frequency **control system** used for each **generating unit**.”.

20 Schedule 8.3, Technical Code A, Appendix B, clause 5 amended

- (1) In Schedule 8.3, Technical Code A, Appendix B, replace clause 5(a) with:
“(a) for each of its **generating units** with no inverter, test the modelling parameters and voltage response of the **generating unit’s** analogue voltage **control system** at least once every 5 years; and”.
- (2) In Schedule 8.3, Technical Code A, Appendix B, replace clause 5(b) with:
“(b) for each of its **generating units** with no inverter, test the modelling parameters and voltage response of the **generating unit’s** digital voltage **control system** at least once every 10 years; and”.
- (3) In Schedule 8.3, Technical Code A, Appendix B, after clause 5(b), insert:
“(ba) for its **generating units** with an inverter test the response of each voltage **control system** used for those **generating units** at least once every 10 years; and
“(bb) unless agreed otherwise with the **system operator**, for its **generating units** with an inverter test the response of each voltage **control system** used for those **generating units** within 3 months of a change to the control settings and/or firmware of the voltage **control system** (where the change to the firmware has the potential to materially affect the performance of the voltage response of the **generating units** or **generating station** that the **generating units** are part of); and”.
- (4) In Schedule 8.3, Technical Code A, Appendix B, clause 5(c),—
- (a) replace “(a) or (b)” with “(a), (b), (ba) or (bb)”;
 - (b) in paragraph (i), replace “automatic voltage regulator” with “voltage **control system**”;
and
 - (c) revoke paragraph (ii); and
 - (d) in paragraph (iii), replace “block diagrams.” with “block diagrams; and”; and
 - (e) after paragraph (iii), insert:

“(iv) for **generating units** with an inverter, a verified set of control settings and relevant firmware version identifiers for the voltage **control system** used for each **generating unit**.”.

21 Schedule 8.3, Technical Code A, Appendix B, clause 9 amended

- (1) In Schedule 8.3, Technical Code A, Appendix B, clause 9, replace the heading with “**Asset owner dynamic reactive power compensation device transient response and control**”.
- (2) In Schedule 8.3, Technical Code A, Appendix B, clause 9, replace “**grid owner**” with “**asset owner with a dynamic reactive power compensation device** directly connected to the **grid**”.
- (3) In Schedule 8.3, Technical Code A, Appendix B, clause 9(a), replace “static var compensators” with “**dynamic reactive power compensation devices**”.
- (4) In Schedule 8.3, Technical Code A, Appendix B, clause 9(b), replace “static var compensators” with “**dynamic reactive power compensation devices**”.
- (5) In Schedule 8.3, Technical Code A, Appendix B, clause 9(c), replace “static var compensators” with “**dynamic reactive power compensation devices**”.
- (6) In Schedule 8.3, Technical Code A, Appendix B, clause 9(d), replace “static var compensator” with “**dynamic reactive power compensation device**” in each place.

22 Schedule 8.3, Technical Code A, Appendix B, clause 11 amended

- (1) In Schedule 8.3, Technical Code A, Appendix B, clause 11(a), replace “excitation systems” with “voltage **control systems**”.
- (2) In Schedule 8.3, Technical Code A, Appendix B, clause 11(b), replace “excitation systems” with “voltage **control systems**”.
- (3) In Schedule 8.3, Technical Code A, Appendix B, clause 11(c):
 - (a) in paragraph (i), replace “automatic voltage regulator” with “voltage **control system**”; and
 - (b) revoke paragraph (ii); and
 - (c) in paragraph (iii), replace “excitation system” with “voltage **control system**”.

23 Schedule 8.3, Technical Code B, clause 7 amended

- (1) In Schedule 8.3, Technical Code B, clause 7(2), replace “**system**” with “system”.
- (2) In Schedule 8.3, Technical Code B, clause 7(6):
 - (a) replace “shedding” with “**shedding**”; and
 - (b) in paragraph (a), after “pre-event **demand**”, insert “excluding the pre-event **demand** of **energy storage systems** with a capacity equal to or greater than the threshold in clause 8.21(1)”.
- (3) In Schedule 8.3, Technical Code B, after clause 7(6AA), insert:

“(6AB) Despite subclause (6AA), each North Island **connected asset owner** must exclude the pre-event **demand** of **energy storage systems** with a capacity equal to or greater than the threshold in clause 8.21(1) in accordance with subclause (6)(a) until such time as the requirement to include this measure in its **automatic under-frequency load shedding** system is included in the **system operator’s AUFLS technical requirements report**.

“(6AC) For the avoidance of doubt, in relation to subclause (6AB), each North Island **connected asset owner’s automatic under-frequency load shedding** system must comply with the **system operator’s AUFLS technical requirements report** in all other respects from 30 June 2025.”.
- (4) In Schedule 8.3, Technical Code B, clause 7(6A), after “pre-event **demand**”, insert “excluding the pre-event **demand** of **energy storage systems** with a capacity equal to or greater than the threshold in clause 8.21(1)”.

24 Schedule 12.5 amended

In Schedule 12.5, Table, column 2, row 11, replace “Static var compensators” with “**Dynamic reactive power compensation devices**”.

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 (the Code) comes into force on 1 May 2025.

The amendment amends provisions in the Code relating to common quality to:

- improve the provision of information on assets wanting to connect, or which are connected, to the power system to provide for the planning and operation of the power system in a safe, reliable, and economically efficient manner; and
- update and include new terms in the Code to enable emerging or new technologies.

More information about the amendments is available on the Electricity Authority’s website <https://www.ea.govt.nz/>
