MINUTES OF CQTG MEETING 11

Held on Wednesday 16 April 2025, 10:03am – 11:08am
Electricity Authority office (online) – Wellington

Members present:	Sheila Matthews (Chair), Graeme Ancell, Matt Copland, Brent Duder-Findlay, Barbara Elliston, Brad Henderson, Stuart MacDonald, Mike Moeahu, Rob Orange, Jon Spiller, Gareth Williams.
Apologies:	Stuart Johnston.
In attendance:	Phillip Beardmore, Rob Mitchell.

1. Introduction

1.1 The Chair welcomed attendees to the eleventh meeting of the Common Quality Technical Group (CQTG). A quorum was established, with eleven of the twelve members present.

1.2 The purpose of this meeting was to seek feedback from the CQTG on a draft consultation paper for two voltage-related Code amendment proposals.

2. Draft Code amendment proposal consultation paper

2.1 Phillip presented slides describing the key aspects of the two Code amendment proposals in the draft consultation paper. Key points from the discussion are summarised below.

Voltage support Code amendment proposal

2.2 The CQTG advised and agreed on:

(a) requiring a ±33% reactive power capability by default, unless otherwise agreed by the distributor and embedded generator

(b) replacing the term “maintain a constant voltage” with “regulate voltage” in the proposed Code drafting

(c) using the term “electrically closest to the embedded generating station” to determine which grid exit point (GXP) is to be used for the purpose of determining whether an embedded generating station is connected at the same nominal voltage as the GXP electrical busbar

(d) including alternative voltage control modes in the proposed Code drafting, such as “constant reactive power” and “constant power factor”

(e) reviewing the current Code wording to determine whether "as recorded in the asset capability statement" should be added

(f) clarifying what is meant by "commissioned", by using the term "when first electrically connected"

(g) clarifying that the 10MW threshold is measured as "maximum export power" rather than "export", and including examples for standalone and hybrid generating stations in the consultation paper.

Fault ride through Code amendment proposal

2.3 As with the voltage support Code amendment proposal, the CQTG recommended using the term "when first electrically connected" rather than "commissioned".

Benefits of both proposals

2.4 The CQTG agreed with the identified benefits in the draft consultation paper.

Costs of the voltage support Code amendment proposal

2.5 The CQTG agreed the key cost of the voltage support proposal for embedded generators is the opportunity cost from not being able to operate at or near unity power factor. The CQTG agreed the assessment of the proposal's costs should consider embedded generators' increased capital costs from their embedded generating stations having higher active power export capability to avoid lower active power exports because of the proposed voltage support obligation.

2.6 The CQTG suggested using an estimate of 5% for the additional active power export capability of an embedded generating station. This was based on the embedded generating station exporting/importing a minimum net reactive power that is 33% of the station's maximum continuous active power output, which would equate to the generating station operating at a 0.95 power factor.

2.7 Some members noted that reactive power support is a key part of supporting common quality. If generators do not provide reactive power support, the cost to network owners would increase as they would need to invest in additional assets.

2.8 It was also noted that operating an inverter in 'reactive power (Q) priority mode' would help maximise an embedded generating station's active power export. This was because the generating station would be able to operate at unity power unless required otherwise by the distributor due to the distribution network's reactive power needs.

2.9 Brad agreed to provide an estimate of inverter capital costs (±50%) to inform the assessment of incremental upfront costs for embedded generators under the proposal.

Action Item	**11.1: Brad to provide an estimate of inverter capital costs (±50%) to inform the assessment of incremental upfront costs for embedded generation under the voltage support proposal.**

2.10 The CQTG recommended clarifying that under the voltage support proposal, embedded generators would not have to provide the system operator with any power system studies that are additional to what is required by the distributor. This is to avoid potential confusion around the provision of models to the system operator, who tends to use different models to distributors.

Costs of the fault ride through Code amendment proposal

2.11 The CQTG discussed whether the compliance costs associated with the fault ride through proposal should be assessed as being proportionate to the size of the generating station. In other words, a generating station with a maximum export capacity of 10MW or more but less than 30MW should face lower fault ride through compliance costs than a generating station with a maximum export capacity of 30MW or more. It was noted that the system operator's current practice is to require all new generating stations to undertake fault ride through studies.

2.12 A member estimated the cost of fault ride through studies may be in the range of $10,000-$15,000 for a generating station using inverters, but noted this cost could be much higher if EMT studies were required. Another member agreed the cost could be much higher if EMT studies were required or additional models to PowerFactory were required.

2.13 The CQTG agreed the assessment of the fault ride through proposal's costs should assume compliance costs would be lower for generating stations with a maximum export capacity of 10MW<30MW than for generating stations with a maximum export capacity of ≥30MW.

Clause 8.23 Code drafting

2.14 The CQTG discussed whether the consultation paper should include clarifications to the drafting of clause 8.23.

2.15 The CQTG agreed there were material policy implications associated with the proposed changes to clause 8.23 being discussed. The CQTG agreed these policy implications needed further consideration, and therefore no proposed changes to clause 8.23 should be included in this consultation paper.

Action Item	**11.2: Authority to consider the CQTG's feedback on the voltage-related Code amendment proposal consultation paper, and incorporate feedback into the paper.**

2.16 The meeting closed at 11:08am.

Summary of outstanding action points

No.	Action	Who	Status
5.4	• Authority to consider reviewing the periodic testing requirements, so that Part 8 of the Code contains high-level output-focussed obligations and specific testing requirements are placed in a separate document incorporated by reference into the Code.	Authority	In progress

5.15	• Authority to consider the appropriateness of including in the Code a new definition 'generating system'.	Authority	In progress
7.2	• Voltage issue: Authority to consider clarifying the terms "synchronised", and "available for dispatch" in clause 8.23 of the Code.	Authority	In progress
7.4	• Voltage issue: Authority to consult distributors (likely via Electricity Networks Aotearoa (ENA)) on a ±33% net reactive power range for generators connected to distribution networks, explaining the reasons for this range when doing so.	Authority	Not started
7.5	• Voltage issue: System operator to carry out further voltage-related studies to determine whether the GXP power factor requirements in the Code should be revised.	System operator	In progress
7.7	• Voltage issue: Authority to consider submitters' concerns about the potential costs of Option 2 as part of evaluating the option's benefits and costs.	Authority	In progress
7.9	• Voltage issue: Authority to add GFM as a topic to the system strength work in the FSR roadmap (item 6) in the next financial year.	Authority	In progress
7.10	• Harmonic issue: Authority to raise the device standard issue with MBIE and propose removing NZECP 36:1993.	Authority	In progress
7.12	• Harmonic issue: Authority to develop harmonics options 1 and 2, discuss with the harmonics sub-group, and present a draft options consultation paper to the CQTG in Q1 2025.	Authority	Not started
8.1	• Authority / system operator to define "point of control" and specify the applicable transformer for routine testing of IBR in the DIBR	Authority / system operator	Not started

8.6	• Authority to clarify in the DIBR which: (i) control setting changes are considered/deemed to affect frequency control, and (ii) firmware changes are considered/deemed to affect frequency response performance.	System operator / Authority	In progress
8.7	• Authority to clarify in the DIBR which: (i) control setting changes are considered/deemed to affect voltage control, and (ii) firmware changes are considered/deemed to affect voltage response performance.	System operator / Authority	In progress
8.9	• Authority to discuss internally the possibility of the NCTG looking at testing obligations on distribution-connected dynamic reactive power compensation devices.	Authority	In progress
8.11	• Authority to elaborate (under FSR-007) that further clarification of how clauses 8.17 and 8.19 would apply to BESS will be provided in the DIBR.	Authority	Closed as the draft DIBR's scope does not extend to clauses 8.17 and 8.19
8.12	• Authority to follow up on Stuart M's question regarding how aggregators with ESS should be treated under the Code's AUFLS obligations.	Authority	Not started
9.2	• Authority to consider additional work on ramp rates and droop settings for generating stations.	Authority	Not started
9.4	• Transpower (as the grid owner) to provide guidance on the intent and enforcement of the current power factor requirements	Grid owner	In progress
9.6	• Authority to further develop Alternative 1 for the co-ordination of reactive power flows through GXPs,	Authority	Not started

	to establish a bilateral information-sharing framework between the system operator and distributors.		
9.7	• Authority to proceed with voltage option 1, ensuring that grandfathering aligns with the approach taken for frequency proposals.	Authority	Complete
9.8	• Authority to proceed with voltage option 3, ensuring alignment with other options by linking fault ride through to GXP voltage and the 10MW threshold.	Authority	Complete
9.9	• Authority to clarify the definition of "idle" in relation to BESS AOPOs, and to clarify the voltage AOPOs when in standby mode.	Authority	Not started
9.10	• Authority / system operator to consider adding a requirement for protection co-ordination studies into the DIBR.	Authority / system operator	Complete
10.1	• Authority to add wording to the common quality information requirements consultation paper explaining why only some of the Part 8 technical codes are proposed to be moved into the DIBR.	Authority	Complete
10.2	• System operator to check the timeframes in Chapter 1 of the DIBR apply to assets other than new assets, and to clarify the process in section 17.3 of the DIBR for the grid owner and connected parties to ensure that protection coordination has been achieved.	System operator	Complete
10.3	• System operator to draft a cover note for the DIBR, explaining the rationale for the proposed DIBR requirements and a summary of the costs and benefits.	System operator	Complete
10.4	• System operator to clarify in the DIBR that generators will be required to provide the system operator with state-of-charge indications at the generating station	System operator	Complete

	level for IBR, along with the number of active inverters.		
10.5	• System operator to incorporate CQTG feedback on the draft scope of work for stage 1 of a system strength-related investigation, with this feedback including (a) clarifying the types of issues that will be considered and those that are out of scope (b) clarifying that some IBR can sustain fault levels, and (c) summarising the 6 GFM technologies, but specifically focusing on the 2 main GFM technologies.	System operator	In progress
11.1	• Brad to provide an estimate of inverter capital costs (±50%) to inform the assessment of incremental upfront costs for embedded generation under the voltage support proposal.	Brad Henderson	
11.2	• Authority to consider the CQTG's feedback on the voltage-related Code amendment proposal consultation paper, and incorporate feedback into the paper.	Authority	

Confirming the CQTG has approved these meeting minutes are a true and correct record.

Dated this 24th day of June 2025

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Sheila Matthews

Chair