MINUTES OF CQTG MEETING 10

Held on Wednesday 9 April 2025, 1:13pm – 2:52pm
Electricity Authority office – Wellington

Members present:	Sheila Matthews (Chair), Graeme Ancell (online), Brent Duder-Findlay (online), Brad Henderson (online), Stuart Johnston (online, until 2:30pm), Stuart MacDonald, Mike Moeahu (online), Jon Spiller, Gareth Williams (online).
Apologies:	Matt Copland, Barbara Elliston, Rob Orange.
In attendance:	Nyuk-Min Vong (Vong), Phillip Beardmore, Otis Boyle (online), Rob Mitchell (online).

Introduction

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

2. Addressing common quality information requirements

2.1 Otis presented:

(a) a summary of submitter feedback on the "Addressing common quality information requirements" consultation paper published by the Authority on 1 October 2024, and

(b) an overview of a draft consultation paper with the Authority's proposal to amend the Code to clarify and update the Part 8 common quality information requirements and to separately incorporate technical specifications in a new system operation document.

2.2 There were no comments from the members.

3. Proposed system operation document to be incorporated by reference in the Code

3.1 Vong presented the 8 draft chapters in a new system operation document that is proposed to be a document incorporated by reference (DIBR) in the Code. Key points from the discussion are summarised below.

General

3.2 A member asked why the proposed DIBR does not comprise all the technical codes in Part 8. It was explained that the DIBR's scope is limited to technical common quality information requirements, which form a subset of the Part 8 technical codes.

Action Item	**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.**

Chapter 1

3.3 A member queried whether the timeframes in this chapter were applicable to assets other than new assets connecting to the power system for the first time (eg, existing assets being refurbished).

3.4 A request was made to update section 17.3 to clarify the process for ensuring that protection coordination has been achieved between the transmission grid owner and connected parties.

Action Item	**10.2: System operator to check that 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.**

Chapter 2

3.5 There were no comments from the CQTG on chapter 2.

Chapter 3

3.6 There were no comments from the CQTG on chapter 3.

Chapter 4

3.7 The CQTG asked why three types of models (PowerFactory, Power System Computer Aided Design (PSCAD) and Western Electricity Coordinating Council (WECC)) would need to be provided to the system operator. Members questioned the long-term benefit of requiring three models instead of one, noting this would be very expensive for generators. The group suggested it may be appropriate to make the modelling requirements on smaller generators less onerous.

3.8 One member suggested reducing the timeframe between requiring M1 and M2 models in order to remove the need for a new model format (WECC).

3.9 Another member suggested the provision of unencrypted models would remove the need for asset owners to have ongoing obligations related to when models are updated and/or should the original equipment manufacturer go out of business.

Action Item	**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.**

Chapter 5

3.10 The CQTG noted the points raised in the discussion on chapter 4 also applied to chapter 5.

3.11 In response to a member's query, Vong clarified that an asset owner did not need to use all of the models when undertaking a connection study. Instead, an asset owner needed to use only one model for a connection study.

Chapter 6

3.12 There were no comments from the CQTG on chapter 6.

Stuart Johnston left the meeting at 2:30pm

Chapter 7

3.13 There were no comments from the CQTG on chapter 7.

Chapter 8

3.14 Technical Code C is proposed to be moved to the DIBR, and expanded upon. For example, a new table indicating the requirements for inverter-based resources (IBR) is being proposed. The threshold for indications and measurements relating to generating units and reactive plant has been kept at 5MW / 5Mvar, respectively.

3.15 One member asked whether asset owners will have to provide data on the state of charge of individual generating units. Vong clarified that state-of-charge indications would be required at the generating station level for IBR generation. Vong also clarified that asset owners would need to provide the system operator with the number of active inverters for a generating station, to determine the generating station's reactive capability.

Action Item	**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 level for IBR, along with the number of active inverters.**

4. System strength

4.1 Feedback was sought from the CQTG on a draft scope of work for the system operator to investigate system strength-related operational challenges that New Zealand's power system is likely to face due to a high penetration of IBR.

4.2 The key points from the discussion were:

(a) One member noted the output of the scope of work was to propose future system study work to analyse and determine any recommended technical requirements for asset owners to support transmission network operation as more IBR connected to the power system. Therefore, this work was stage 1 of a two-stage investigation. In the Transmission Planning Report, the grid owner provides a 10-year forecast of maximum fault levels as per the requirements of the Default Transmission Agreement. Therefore, the CQTG questioned whether the scope of the system operator's work could be tightened to include only minimum fault levels. Vong clarified that rather than

focusing on fault levels, the system operator's approach will be to investigate the conditions under which inverters may become unstable. This is because other metrics, such as the short circuit ratio, may be more directly relevant to IBR performance than fault level alone.

(b) It was suggested the scope could be clearer on the type of issues that will be considered, and which issues will be out of scope.

(c) Members recommended clarifying paragraph 2.4 of the draft scope of work to note that IBRs can, depending on the type of design, sustain fault levels.

(d) There was agreement that the scope should summarise the six grid forming (GFM) inverter technologies that are on the market, but specifically focus on the two main GFM technologies.

Action Item **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.**

5. Any other business

5.1 Reviewing the minutes from the ninth CQTG meeting would be carried forward to a future meeting.

5.2 The next CQTG meeting was scheduled for Wednesday 16 April at 10am, which would be a short online session to discuss the draft consultation paper for two voltage-related Code amendment proposals.

5.3 The meeting closed at 2:52pm.

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",	Authority	In progress

	and “available for dispatch” in clause 8.23 of the Code.		
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
7.15	• Frequency issue: Authority to further investigate option 2, with a particular focus on learnings from Australia’s implementation of a uniform small deadband.	Authority	Completed
7.16	• System operator to conduct a literature review on BESS performance obligations and share a proposed high-level scope for system studies with the CQTG.	System operator	Completed

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	In progress
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
9.1	• CQTG chair to sign the minutes of the seventh and eighth CQTG meetings and publish the minutes on the Authority’s website.	Authority	Completed
9.2	• Authority to consider additional work on ramp rates and droop settings for generating stations.	Authority	Not started
9.3	• Authority to incorporate the CQTG’s feedback into the frequency	Authority	Completed

	consultation paper, regarding: (i) 10MW threshold / ±0.1Hz dead band (ii) implementation timeframes (iii) grandfathering approach (iv) estimated costs (v) alternative approaches to achieving compliance with the periodic testing requirements in the DIBR for smaller generating stations.		
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
9.5	• Authority to circulate the GXP power factor study report, including relevant data and graphs to the CQTG.	Authority	Completed
9.6	• Authority to further develop Alternative 1 for the co-ordination of reactive power flows through GXPs, to establish a bilateral information-sharing framework between the system operator and distributors.	Authority	Not started
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
9.11	• Authority to email the list of outstanding actions from CQTG meetings 7 and 8 to members.	Authority	Completed

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	
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	
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	
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 level for IBR, along with the number of active inverters.	System operator	
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	

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

Dated this 24th day of June 2025

Sheila Matthews

Chair