

# Code Administrator Meeting Summary

## Meeting name: GC0155 Clarification of Fault Ride Through Technical Requirements - Workgroup Meeting 9

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Date: 04/05/2023

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### Contact Details

Chair: Milly Lewis, National Grid ESO [Milly.Lewis@nationalgrideso.com](mailto:Milly.Lewis@nationalgrideso.com)

Proposer: Terry Baldwin, National Grid ESO [Terry.Baldwin@nationalgrideso.com](mailto:Terry.Baldwin@nationalgrideso.com)

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## Key areas of discussion

The Chair provided an introduction as the new Chair of GC0155 and outlined the objectives of the workgroup.

### Review of Actions Log

The Workgroup reviewed open actions and discussed the following:

- The Workgroup agreed to close actions 30,35, 36, 37, 38 and 40
- Action 29: No update available and the Workgroup agreed that this should remain open
- Action 30: BA confirmed that it was not possible for the Workgroup to discuss this, but PM requested that a three-way conversation take place. Therefore, the action is to remain open
- Action 37: JF advised the Workgroup that it was not deemed to be appropriate for the ESO to instigate this meeting and the action should be closed and followed up by workgroup members independently if required
- Action 39: BA to provide an update at the next meeting

### Review Timeline

- The Workgroup agreed that the timeline may need further review and an additional workgroup to be scheduled

### Compliance Team Update

GM presented to the workgroup

- GM talked through how the Fault Ride Through (FRT) compliance process is managed. GM noted that the main driver in the process is Ofgem and BAIS then the concerns for continued supply and a previous incident led to GC0151. GM talked through the ESO FRT process (see slides) and what may lead to a Significant Incident Report (SIR).
- A workgroup member questioned the process and what would lead to a decision of compliance or non-compliance. GM confirmed that it was down to the user to prove compliance within the allocated two-hour window.
- Workgroup members also questioned the acceptable mitigation factors and agreed that this needs to be defined on the Grid Code. It was noted that GC0141 20-minute fault ride through could be used for a single event.

- The workgroup went on to discuss operational timescales and noted the difference routes presented (see slides).

### Draft Temporary Overvoltage Requirements to Legal Text

JF and BA went on to discuss the Draft Temporary Overvoltage Requirement Legal Text.

BA stated that there was a requirement to cover the following points:

- We put backstop to how far you are required to ride through the over voltage
- May not need to ride through – your plant may see the overvoltage under reasonable conditions, and you should ensure you can ride through
- If you're not able to ride through, then you're required to ride through with the change of plant. If that plant is beyond that agreed, then you stay in that cap

Workgroup members discussed details presented in the slides

- A workgroup member queried how the upper limit would be set and BA confirmed that further work would be required with the TOs to agree this but envisaged that the TOs and Connections Manager would agree this but that it would not form part of the connection agreement. A workgroup member queried if this would be per connection rather than a global limit and BA confirmed that this was the case.
- ML questioned if the obligation would be put on the TOs through an STC modification. BA confirmed that this would not be the case and that the obligation would be put on the TOs through GC0155.
- PM queried how this would sit with the current Contracts for Difference (CFD) agreement as this is a managed process that encourages low-cost generators, and that there is competition for low-cost generation rather than highly developed plant. This is to ensure customers pay less. PM expressed concern that GC0155 would not give a level playing field when competing in CFD.

### Legal Text Review

The workgroup went on to discuss the Legal Text for

#### **ECC 6.3.15**

- BA noted that additional text had been added to state that there would not be a requirement to ride through if a trip had occurred alongside a list of exclusions.

#### **ECC 6.1.11**

- BA talked through the changes and the reasons for the change and detailed the curve shown. This included that the volts will not exceed certain limits in ECC 6.1.11.
- A workgroup members queried the term "any planned event". BA confirmed that this will be removed.
- It was noted that the graphic was taken from TGN 2.8.8. BA confirmed that the same levels had been confirmed in this section too.
- BA noted that there is a requirement for an Impact assessment and what the output of the requirements would be.
- It was noted that this may also be required for Scotland but noted that there maybe larger disturbances. With Scotland having connections at 32 kV so this should be applicable to both Supergid and Scotland. This may impact the curve seen.
- Workgroup members discussed the points on reactive power and noted that if this was to be translated into the ECC, this would be replaced with a Fast Fault Current Infeed (FFCI) requirement. BA noted that there was a requirement to phrase them with FFCI. Whilst ECC6.3.16 - Section came when requirement for generators was implemented and dictates how the reactive current behaves, therefore allowing the infeed to be adjusted to decide how much reactive current is put in.
- A workgroup member questioned the defined terms and if voltage control was defined. (**Action** - BA to consider this)

- A workgroup member highlighted that there may be a need to consider over voltage with the Grid Code ECC6.3.16.1.18 stating that the user is permitted to block when they expect transient over voltage. BA agreed that this should be thought through.

**Alternative Request Discussion and Vote**

PM presented a possible alternative to the workgroup.

- PM advised the workgroup that the alternative is as follows:
  - Draft legal text changes for this Proposed Alternative Modification Proposal from Original Modification Proposal are detailed in Appendix 1 (see WACM) based on the current version of the Original legal text. The proposed GC0155 Original solution assumes retrospectivity automatically, which is anticipated to put the financial burden on developers without any suitable cost recovery mechanism. The retrospective implementation may not be possible at many sites in GB. Hence, this alternate proposal which focuses on forward looking (not retrospective) ECC clauses to be applicable to generators connecting after implementation of GC0155 modification.
  - The draft legal text proposes changes to the clauses under ECC6.3.15 to introduce high voltage ride through (HVRT) requirements into the Grid Code.
  - Additionally, we propose a discussion on ECC.6.3.16 fast fault current injection requirement, to efficiently manage TOV conditions during fault recovery. The updated fast fault current injection could be developed in line with the German Grid Code requirements, which proposes a smooth transition from reactive current injection to absorption during transition between fault low voltage and TOV conditions. The generator shall return to normal voltage control once the voltage is stabilised within normal operating conditions as per CC6.1.4/ECC6.1.4 after fault clearance.
- Workgroup agreed by majority that the alternative should proceed to WACM
- **Action** - PM to send the updated WACM to Code Admin
- A workgroup member highlighted the possible need for a Cost Benefit Analysis to be completed

**Next Steps**

Workgroup 10 to take place on 09 June 2023

**Actions**

For the full action log, [click here](#).

Action number	Workgroup Raised	Owner	Action	Due by	Status
27	WG7	BJO	To share with the Workgroup an email sent from FW	WG8	Closed
28	WG7	AF/BA	To have a conversation offline re documents that are within the GC appendix	WG8	Closed
29	WG7	SS/BC	To have a conversation offline on understand GEP parameters.	WG8	Open
30	WG7	CB	To share with the Workgroup to network design equipment requirements from SPN	WG9	Open
31	WG7	AM	To provide evidence of problem with low level injection requirements	WG8	Closed
32	WG7	BA	To check that whether the evidence from OEMs can be shared ASAP with the Workgroup		Closed
33	WG7	BA	Comparison of international standards for HVRT	WG8	Closed
34	WG7	BA/TB	Provide a strawman/draft legal text on the requirements	WG8	Closed
35	WG7	BA	To check with the compliance team what checks they do in a FRT scenario	WG9	Closed
36	WG7	JF	To provide where the document for ENTSO-E and clause has come from	WG8	Closed

37	WG8	JF	Arrange meeting with developers and manufacturers	WG9	Closed
38	WG8	BA	Discuss WG3 Legal Text draft with AF	WG9	Closed
39	WG8	BA	Discuss <u>CC.6.1.11</u> with TOs and manufactures and feedback to WG with strawman	WG9	Open
40	WG8	ALL	Provide feedback on <u>CC.6.3.15.1</u> on draft legal text	WG9	Closed
41	WG9	BA	WG member questioned the defined terms and if voltage control was defined. Please consider	WG10	Open
42	WG9	PM	Update WACM and send to ML	WG10	Open

### Attendees

Name	Initial	Company	Role
Milly Lewis	ML	National Grid ESO	Chair
Terri Puddefoot	TP	National Grid ESO	Technical secretary
Terry Baldwin	TB	National Grid ESO	Proposer
Bisheoy Awad	BA	National Grid ESO	Workgroup member
Alan Mason	AM	Oceanwinds	Workgroup member
Forooz Ghassemi	FG	NGET	Workgroup member
Fraser Norris	FN	SSE	Workgroup member
Isaac Gutierrez	IG	Scottish Power	Workgroup member
John Fradley	JF	ESO	Workgroup member
Julie Richmond	JR	Scottish Power	Workgroup alternate
Martin Aten	MA	Uniper	Workgroup member
Nicola Barberis Negra	NBN	Orsted	Workgroup member
Priyanka Mohapatra	PM	Scottish Power	Workgroup member
Martin Aten	MA	Uniper	Workgroup alternate
Tim Ellingham	TE	RWE	Workgroup member
Owen Curran	OC	Siemens	Observer
Cornel Brozio	CB	SP Energy Networks	Observer
Sigrid Bolik	SB	Siemens	Observer
Gideon Miti	GM	National Grid ESO	Presenter