ESO

Meeting summary

Grid Code Development Forum – 7 August 2024

Date:	07/08/2024	Location:	MS Teams
Start:	09:00	End:	11:00

Participants

Attendee	Company	Attendee	Company
Claire Newton	National Grid ESO (Chair)	Changjiang Zhan	NR Electric
David Halford	National Grid ESO (Tech Sec)	Suzanne Law	SSE
Antony Johnson	National Grid ESO (Presenter)	Bukky Daniel	EDF
Calum Erentz	National Grid ESO (Presenter)	Ross Strachan	EDF Renewables
Hazem Karbouj	National Grid ESO	Harry Burns	EDF Renewables
Gordon Frazer	National Grid ESO	Ruth Kemsley	Our Footprints
Sarah Williams	National Grid ESO	Alastair Few	Drax
Hazem Karbouj	National Grid ESO	Sigrid Bolik	Siemens
Ife Garba	National Grid ESO	Alan Creighton	Northern Powergrid
Sarah Carter	National Grid ESO	Mike Kay	P2 Analysis
Luke Stevenson	National Grid ESO	Julie Richmond	Scottish Power
Deborah Spencer	National Grid ESO	Isaac Gutierrez	Scottish Power
Frank Kasibante	National Grid ESO	Andrew Larkins	Sygensys
Nnaemeka Anyiam	National Grid ESO	Graeme Vincent	SP Energy Networks
Steve Baker	National Grid ESO	Benjamin Marshall	SSE
Graham Lear	National Grid ESO	Paolo Spinelli	Field Energy
Jamie Morgan-Wormald	National Grid ESO	Claire Hynes	RWE
Alan Hatherall	SSE	Nicola Barberis Negra	Orsted
Jialun Xu		Sean Gauton	Uniper
Andy Ho	Field Energy	Hollie Crombie	SSE

Rachel Hodges	Cubico Invest	Nathanael Simms	National Grid
Matthew Bell	EDF	Patrick Wohlfarth	Centrica
Francisco Freijedo	Huawei	Sabiha Farzana	Statkraft
Nigel Platt	Siemens		

Agenda and slides

A link to the Agenda and Presentations from the August GCDF can be found here.

GCDF

Please note: These notes are produced as an accompaniment to the slide pack presented and provide highlights only of discussion themes and possible next steps.

Meeting Opening – Claire Newton (GCDF Chair) & David Halford (GCDF Tech Sec), NGESO

The meeting was opened, with an overview of the agenda items that will be covered.

Presentation: Overview of RfG2.0, DCC2.0 & HVDC2.0 – Antony Johnson, NGESO

The ESO shared an overview of RfG2.0 & DCC2.0 following the consultations issued in 2023 and HVDC2.0 following the publication of the current open consultation.

Discussion themes / Feedback

A forum member noted that their assumption was that Grid Forming was being included as part of the HVDC 2.0 code update, with concerns that this was coupling GB frequency with Europe, with for example, Rate of Change of Frequency limits, which would have impacts on the GB system. It was also noted that it was interesting to hear that there is no specific compliance tests or simulations associated with Grid Forming, which could leave the GB System open to behaviours that we cannot currently confidently quantify.

It was noted by a forum member that in relation to the query of no specific compliance tests and simulations from a Grid Forming perspective, this could be a timing issue as at the time of the drafting of RfG2.0, there was no consensus on what these requirements might look like. ENTSO-E is currently working with stakeholders to produce an Implementation Guidance Document (IGD) which is currently work in progress in order to establish these requirements for Users.

A forum member noted that in respect of the repeal section that is in scope of RfG2.0, it could be difficult for projects to identify what specification they would need to work to, bearing in mind that HVDC projects can typically take around 7 years to complete.

It was noted that the presentation notionally captures DC networks including things like MPIs that could be connected to GB, so by definition it would need to define what the offshore interface is. There is currently work taking place in GB around MPIs and HND and that in order to complement, we will need to define what frequency voltage range withstands etc, look like offshore in order to reference the requirements of the converter that interface with r the definitions if it has a European counterpart.

It was noted by the presenter that these are all very valid points and will be fed back as part of the consultation.

A forum member stated that in terms of the potential complexity of who could be caught by the various iterations of the codes, whilst the current drafting is not clear, it is expected that the final legal text drafting will be significantly clearer in this respect.

A forum member stated that in terms of HVDC systems, the provision on them to provide an inertial capability is limited as there is no real stored energy and therefore this additional energy would either have to come from a storage device in the link, a third-party provider or from the remote end synchronous area, the latter being undesirable. In these systems, you are coupling the frequency performance of GB to Europe. There might still be advantages in doing that if the link is bringing power into GB at the time because, in those situations, having that link providing an effective inertial support to GB seems reasonable, though there are questions on how the additional energy should be provided.

If grid forming are specified, there is also an opportunity to specify a power oscillation damping function within the link so as to avoid creating new inter-area modes between GB and Europe.

A forum member noted that the RfG2.0 proposals included High Voltage Ride Through, and asked whether these have been considered, particularly as the Grid Code Modification, GC0155, is also seeking to clarify these requirements.

The presenter confirmed that they had not been involved in this particular modification but would expect the GC0155 Workgroup to be reviewing what is being proposed in Europe to seek to reflect best practice. The presenter noted that a high voltage ride through requirement is included in the drafting of RfG 2.0.

A forum member noted that in the discussions in relation to HVDC2.0, there was no mention of black start as at the moment the Emergency System Restoration Code defines black start requirements and TSO's mutual assistant requirements, but these are not covered at an individual HVDC project level, which would require a specification.

The presenter noted that this cuts across two different codes, noting that to date there has only been visibility of the EU Connection Network Codes (RfG 2.0, DCC 2.0 and HVDC 2.0). To the presenter's knowledge, there has to date been no publication of a draft or consultation of an updated version of the EU Emergency and Restoration Code. The presenter noted there has been a lot of work completed in the GB space on restoration through the introduction of the Electricity System Restoration Standard.

We have the Electricity System Restoration Standard within GB which requires future HVDC systems, particularly those connecting offshore windfarms/offshore generation, to have a restoration capability due to the high volume of offshore generation which is expected going forwards.

A forum member stated that, going forwards, most equipment that will be connected in terms of Distributed Generation and Electric Vehicles is probably going comply with the European standards because of the global market. With that in mind, is there anything detailed within RFG2.0 or DCC2.0 that would conflict with the existing Grid Code and Distribution Code standards? Would changes need to be made to accommodate RFG2.0 and DCC2.0 compliant equipment or are the European requirements over and above the existing GB requirements?

In response to this question, a forum member stated that as the proposed text for RFG2.0 and DCC2.0 is still in draft form, it is currently difficult to establish whether this will be the case, but there will be an exercise that is carried out once the final legal text is published to identify any discrepancies. Current thinking is that there might be some issues relating to Limited Frequency Sensitive Mode - Underfrequency (LFSM-U), but other discrepancies are expected to be minor with parameter changes only.

A Forum member noted that the proposed features such as low frequency response from EV chargers and heat pumps which are being introduced in the EU Codes could help improve GB system security, and the ESO should consider the learnings from the development of the EU Codes.

Presentation: GB Grid Forming (GBGF) – Further Code Change Proposals – Antony Johnson & Hazem Karbouj, NGESO

A presentation was shared which provided an overview of GB Grid Forming (GBGF) to date, with the development of an Expert Group to discuss further proposed changes to the Grid Code in relation to GBGF.

Discussion themes / Feedback

A forum member noted that they had submitted questions in advance of the presentation, which the ESO will respond to separately.

A forum member stated that this was a well-timed activity, particularly as GB was the first country to introduce grid forming into codes, with the rest of the world now following. We should use this as an opportunity to review what other countries are doing and how this might help refine our code as there are examples in the United States where mandating grid forming across batteries, for example, gives them the ability to enforce lower tolerances for things like

phase jump power because the system requirement is shared across a greater number of providers (be they small), which will help limit a system disturbance.

The presenter agreed that these types of examples are good starting points in the evolution of grid forming to ensure we get the best fit for GB. We believe that it is better for a large number of parties to provide support than a small number of players who are required to provide a substantive response.

A forum member stated that the presentation mentioned the importance of characteristics related to the response to phase jumps, and currently there is no explicit phase jump requirement for any generators on the grid apart from grid forming devices, and it would be helpful for developers if these requirements were clarified and could be considered at some point in the future.

A forum member stated that this could be a good opportunity to consider devices that do not have any active power provision, such as STATCOMs, and how these should be treated, as the obligations on these types of devices are unclear.

The presenter stated that the expert group will be seeking to resolve any issues such as this and ensure we improve the process for parties such as developers and manufacturers where we can.

Presentation: Development of a portal for submitting Grid Code data – Calum Erentz, NGESO

The ESO is developing an online portal for users to submit Grid Code data, which is currently submitted in the format specified as part of the Data Registration Code (DRC). A presentation was shared giving an overview of the portal and current progress.

Discussion themes / Feedback

A forum member stated that the Compliance Repeat Plan is submitted by Users every 5 years, and asked whether the current process of data submission will still be required for the next 5 years.

The presenter confirmed that new connections will be onboarded to the system immediately, with existing assets onboarded on to the system when requested to provide their first Compliance Repeat Plan submission.

A number of forum members raised the potential issue of accessing the system when representatives of the asset owner could be submitting this data on behalf of the asset owner, as currently the process of accessing the system is that the User submitting the data would require an email address from the asset owner.

The presenter stated that there had been a number of internal and external discussions in relation to this scenario. The ESO has a contract with the asset owner and not any representative that is working on behalf of the owner.

In light of this, a forum member asked if templates could be created that could be completed by the owner's representative and sent to the asset owner for submission.

The presenter advised that contractors could be granted a temporary domain email address for the asset owner business. Also agreed to take this away and consider. – The word DRC could be updated and retained for this purpose (CE)

A forum member stated that they welcome this change but queried how this would work with different ESO areas requiring access to review data submissions.

The presenter stated that internal departments will have access to the system if required in order to review the data submissions. This should lead to a more streamlined process for Users that are required to submit data.

It was also stated that further phases of the system will include a notification function for internal users when data has been submitted.

A forum member asked whether there will be a mechanism to submit data outside of the new portal system due to confidentiality reasons.

The presenter stated that in these scenarios, email or a sharepoint site could be used (although we expect these types of cases to be low).

A forum member asked whether any future Grid Code changes will be required as a result of the introduction of the new system.

The presenter agreed to take this away and investigate further.

If impacted parties wish to be involved in the User Acceptance Testing, then they can contact the presenter at calum.erentz@nationalgrideso.com

AOB

The dates for the 2024 GCDF sessions are available on the GCDF webpage

Attendees were reminded that the GCDF can be used by any industry party to present potential Grid Code changes and future agenda items are welcomed.

The Chair thanked the attendees and presenters for their contributions and closed the meeting.

The next GCDF will be held on the 4th September 2024 with the 28th August 2024 being the deadline for agenda items and presentations.

Action Item Log

Action items: In progress and completed since last meeting.

ID	Agenda Item	Description	Owner	Notes	Target Date	Status
2403	Overview of RfG2.0, DCC2.0 & HVDC2.0	Provide a response to questions sent to ESO prior to the August GCDF	AJ		August 2024	Open