|  |
| --- |
| **Workgroup Terms of Reference and Membership** |

**GC0137:** Minimum Specification Required for Provision of GB Grid Forming (GBGF) Capability (formerly Virtual Synchronous Machine/VSM Capability)

Responsibilities

The Workgroup is responsible for assisting the Grid Code Modification Panel in the evaluation of Grid Code Modification Proposal **GC0137: Minimum Specification Required for Provision of GB Grid Forming (GBGF) Capability (formerly Virtual Synchronous Machine/VSM Capability)**

1. raised by National Grid Electricity System Operator at the Modifications Panel meeting on 19 December 2019. The proposal must be evaluated to consider whether it better facilitates achievement of the Applicable Grid Code Objectives.

Applicable Grid Code Objectives

1. To permit the development, maintenance and operation of an efficient, coordinated and economical system for the transmission of electricity;
2. To facilitate competition in the generation and supply of electricity (and without limiting the foregoing, to facilitate the national electricity transmission system being made available to persons authorised to supply or generate electricity on terms which neither prevent nor restrict competition in the supply or generation of electricity);
3. Subject to sub-paragraphs (i) and (ii), to promote the security and efficiency of the electricity generation, transmission and distribution systems in the national; and
4. To efficiently discharge the obligations imposed upon the licensee by this license and to comply with the Electricity Regulation and any relevant legally binding decisions of the European Commission and/or the Agency. In conducting its business, the Workgroup will at all times endeavour to operate in a manner that is consistent with the Code Administration Code of Practice principles.
5. To promote efficiency in the implementation and administration of the Grid Code arrangements.

Scope of work

1. The Workgroup must consider the issues raised by the Modification Proposal and consider if the proposal identified better facilitates achievement of Grid Code Objectives.
2. In addition, the Workgroup shall consider and report on the following specific issues:

|  |  |
| --- | --- |
| **Workgroup Term of Reference** | **Location in Workgroup Report (to be completed at Workgroup Report stage)** |
| * 1. Implementation and costs; | **Page 50** |
| * 1. Review draft legal text should it have been provided. If legal text is not submitted within the Grid Code Modification Proposal the Workgroup should be instructed to assist in the developing of the legal text; and | **Annex 19** |
| * 1. Consider whether any further Industry experts or stakeholders should be invited to participate within the Workgroup to ensure that all potentially affected stakeholders have the opportunity to be represented in the Workgroup. Demonstrate what has been done to cover this clearly in the report | **Nominations for this workgroup achieved a quorate and diverse membership of 40+ members.** |
| * 1. Consider EBGL implications | **Page 8** |
| * 1. Agree the minimum specification for Virtual Synchronous Machine (VSM) capability and define the term clearly. | **Referenced throughout the report** |
| * 1. Consider what the testing requirements would be | **Page 33** |
| * 1. Consider if adding the minimum specification to the Grid Code is a limiting factor to innovation | **Page 42** |
| * 1. Consider the related developments in the market and how that may affect the minimum specification (e.g. phase 2 of the stability pathfinder) | **Page 42** |
| * 1. Consider the inadvertent impact of the minimum specification for Virtual Synchronous Machine (VSM) capability on existing users | **Referenced throughout the report** |
| * 1. Consider other code impacts | **Page 8** |
| * 1. Consider examples of VSM technology | **Referenced throughout the report** |

1. As per Grid Code GR20.8 (a) and (b) the Workgroup should seek clarification and guidance from the Grid Code Review Panel when appropriate and required.
2. The Workgroup is responsible for the formulation and evaluation of any Workgroup Alternative Grid Code Modifications arising from Group discussions which would, as compared with the Modification Proposal or the current version of the Grid Code, better facilitate achieving the Grid Code Objectives in relation to the issue or defect identified.
3. The Workgroup should become conversant with the definition of Workgroup Alternative Grid Code Modification which appears in the Governance Rules of the Grid Code. The definition entitles the Group and/or an individual member of the Workgroup to put forward a Workgroup Alternative Code Modification proposal if the member(s) genuinely believes the alternative proposal compared with the Modification Proposal or the current version of the Grid Code better facilitates the Grid Code objectives The extent of the support for the Modification Proposal or any Workgroup Alternative Modification (WAGCM) proposal WAGCM arising from the Workgroup’s discussions should be clearly described in the final Workgroup Report to the Grid Code Review Panel.
4. Workgroup members should be mindful of efficiency and propose the fewest number of WAGCM proposals as possible. All new alternative proposals need to be proposed using the Alternative Request Proposal form ensuring a reliable source of information for the Workgroup, Panel, Industry participants and the Authority.
5. All WAGCM proposals should include the Proposer(s)'s details within the final Workgroup report, for the avoidance of doubt this includes WAGCM proposals which are proposed by the entire Workgroup or subset of members.
6. There is an option for the Workgroup to undertake a period of Consultation in accordance with Grid Code GR. 20.11, if defined within the timetable agreed by the Grid Code Panel. Should the Workgroup determine that they see the benefit in a Workgroup Consultation being issued they can recommend this to the Grid Code Review Panel to consider.
7. Following the Consultation period the Workgroup is required to consider all responses including any Workgroup Consultation Alternative Requests. In undertaking an assessment of any Workgroup Consultation Alternative Request, the Workgroup should consider whether it better facilitates the Grid Code Objectives than the current version of the Grid Code.
8. As appropriate, the Workgroup will be required to undertake any further analysis and update the appropriate sections of the original Modification Proposal and/or WAGCM proposals (Workgroup members cannot amend the original text submitted by the Proposer of the modification). All responses including any Workgroup Consultation Alternative Requests shall be included within the final report including a summary of the Workgroup's deliberations and conclusions. The report should make it clear where and why the Workgroup chairman has exercised their right under the Grid Code to progress a Workgroup Consultation Alternative Request or a WAGCM proposal against the majority views of Workgroup members. It should also be explicitly stated where, under these circumstances, the Workgroup chairman is employed by the same organisation who submitted the Workgroup Consultation Alternative Request.
9. The Workgroup is to submit its final report to the Modifications Panel Secretary on **21 July 2021** for circulation to Panel Members. The final report conclusions will be presented to the Grid Code Review Panel meeting on **29 July 2021**.

Membership

1. It is recommended that the Workgroup has the following members:

|  |  |  |
| --- | --- | --- |
| **Role** | **Name** | **Representing** |
| Chair | Kavita Patel | Code Administrator Representative |
| Technical Secretary | Rashpal Gata-Aura | Code Administrator National Grid Electricity System Operator |
| Proposer | Matt Baller | National Grid Electricity System Operator |
| Technical Codes Representative | Antony Johnson | National Grid Electricity System Operator |
| Workgroup Member | Alastair Frew | Drax |
| Workgroup Member | Andrew Roscoe | Siemens Gamesa Renewal Energy |
| Workgroup Member | Andrzej Adamczyk | G E Power |
| Workgroup Member | Andy Vaudin | EDF |
| Workgroup Member | Ben Hillman | SP Energy Networks |
| Workgroup Member | Ben Marshall | SHE Transmission Ltd |
| Workgroup Member | Carl Barker | GE Power |
| Workgroup Member | Christopher Smith | National Grid Interconnectors Ltd |
| Workgroup Member | Damian Jackman | SSE |
| Workgroup Member | Dr.-Ing. Thorsten Bülo | SMA Solar Technology AG |
| Workgroup Member | Eric Anthony Lewis | Enstore |
| Workgroup Member | Francesco Cristiano | Highview Power |
| Workgroup Member | Goran Drobnjak | General Electric |
| Workgroup Member Alternate | Iftekharul Huq+B3B23:C34 | Siemens AG |
| Workgroup Member | Isaac Gutierrez | Scottish Power Renewables |
| Workgroup Member Alternate | Janet Lees | SSE |
| Workgroup Member | Marko Grizelj | Siemens AG |
| Workgroup Member | Meghdad Fazeli | Swansea University & Innoverters-Ltd |
| Workgroup Member | Mike Kay | P2Analysis |
| Workgroup Member | Qing-Chang Zhong | Syndam LLC |
| Workgroup Member | Robert Longden | Cornwall Insight |
| Workgroup Member | Roberto Rosso | ENERCON GmbH |
| Workgroup Member | Ruth McKelvie | Scottish Power Renewables |
| Workgroup Member | Sigrid Bolik | ITPEnergised Ltd |
| Workgroup Member | Simon Orr | National Grid Electricity Transmission |
| Workgroup Member | Sridhar Sahukari | Hornsea 1 Limited |
| Workgroup Member | Tusitha Abeyasekera | Mitsubishi Heavy Industries (Vestas Offshore) |
| Workgroup Member | Vicenç Casadevall | GE Renewable Energy |
| Workgroup Member | Ben Gomersall | National Grid Electricity Transmission |
| Workgroup Member | Shurooque Baloch | National Grid Electricity Transmission |

14. A (\*) Workgroup must comprise at least 5 members (who may be Panel Members). The roles identified with an asterisk (\*) in the table above contribute toward the required quorum, determined in accordance with paragraph 15 below.

15. The Grid Code Review Panel must agree a number that will be quorum for each Workgroup meeting. The agreed figure for this modification is that at least 5 Workgroup members must participate in a meeting for quorum to be met.

16. A vote is to take place by all eligible Workgroup members on the Modification Proposal and each WAGCM proposal and Workgroup Consultation Alternative Request based on their assessment of the Proposal(s) against the Grid Code objectives when compared against the current Grid Code baseline.

* Do you support the Original or any of the alternative Proposals?
* Which of the Proposals best facilitates the Grid Code Objectives?

The Workgroup chairman shall not have a vote, casting or otherwise. The results from the vote and the reasons for such voting shall be recorded in the Workgroup report in as much detail as practicable.

17. It is expected that Workgroup members would only abstain from voting under limited circumstances, for example where a member feels that a proposal has been insufficiently developed. Where a member has such concerns, they should raise these with the Workgroup chairman at the earliest possible opportunity and certainly before the Workgroup vote takes place. Where abstention occurs, the reason should be recorded in the Workgroup report.

18. Workgroup members or their appointed alternate are required to attend a minimum of 50% of the Workgroup meetings to be eligible to participate in the Workgroup vote.

19. The Technical Secretary shall keep an Attendance Record for the Workgroup meetings and circulate the Attendance Record with the Action Notes after each meeting. This will be attached to the final Workgroup report.

20. The Workgroup membership can be amended from time to time by the Grid Code Review Panel and the Chairman of the Workgroup.