

Distribution Code Review Panel

Meeting 63 – 9 March 2017

GC 0096 - Storage

Paper by Code Administrator

The Storage Workgroup GC 0096 was established by the Grid Code Review Panel (GCRP) at the 18 May 2016 GCRP meeting and it was agreed that the Workgroup shall formally report to the GCRP. The Code Administrator and NGET lead representatives are to ensure the deliverables of GC0096 remain in-line with the outcomes of the BEIS/Ofgem call for evidence on Flexibility.

The Workgroup comprises of suitable and appropriate cross-section of experience and expertise from across the industry and includes a representative from the ENA/DNOs.

A timetable has been formed to meet the scope and objectives of the work being undertaken in a timely manner (see appendix1)

The focus of the Workgroup is to define 'Storage' in the Grid Code, where currently only 'Pump Storage' is considered. It will then seek to establish suitable technical requirements to allow this classification of users to connect and safely operate on the GB National Electricity Transmission System.

Five workgroup meetings have been proposed.

- meeting one: "Definitions"
- meeting two-to-three – "Technical and Planning Requirements"
- meeting four – "Structure"
- meeting five – "Next steps"

Please refer to TOR for dates and details pertaining to each workshop.

The scope of the Workgroup shall not include:

- Charging arrangements for Storage; network charging is defined in other GB codes
- Commercial services for Storage; whilst the Grid Code sets certain technical requirements to deliver response services, the delivery of services is discharged via contractual agreements. This includes procedures to facilitate Aggregation and virtual Power Plants
- Connection requirements for Distribution Code; however we will coordinate with the DCRP and the DNOs to ensure that GC0096 proposals are compatible.

The Workgroup will provide updates and a Report to the Grid Code Review Panel which will:

- Detail the findings of the Workgroup;
- Draft, prioritise and recommend changes to the Grid Code and associated documents in order to implement the findings of the Workgroup; and
- Highlight any consequential changes which are or may be required by other Code Administrators

It is anticipated that the Workgroup will provide an update to each GCRP meeting and present a Workgroup Report to the May 2016 GCRP meeting.

The DCRP/ENA has a representative on the Workgroup and having attended the first meeting on 30/01/17. The following items were agreed at the meeting:

1. No definition of 'energy storage' is needed (this will continue to be deemed as 'Demand')
2. The requirements for 'Electricity Storage' should be technology neutral and set a minimum standard, noting that...
3. ...users can exploit their full operational flexibility through commercial services arrangements/markets (e.g. EFR).

The following items were added to the "to do list"; it was acknowledged that answers would be required for these questions but not explicitly required for the Grid Code change:

1. Consideration of the link between T and D requirements – WG must ensure compatibility between the codes, particularly re. Definitions. Key action for NGET is to liaise with ENA/DCRP on our approach.
2. Do National Grid's technical requirements need to reflect the future EU requirements being implemented in RfG, DCC, or HVDC? How do NG apply these if so? (Ofgem to decide?)
3. Tie in with the recommendations in the BEIS/Ofgem Call for Evidence on Flexibility (expected April/May '17).
4. Compatibility with the Power Responsive Storage Workgroup and commercial regimes including and not exclusively DSR under DCC and EFR.
5. Consider whether existing Grid Code (or DCode) definitions need to be adjusted (e.g. Power Station)
6. Applicability of requirements to Network Operator owned Electricity Storage assets (if applicable).

Panel Recommendation

The Panel is asked to consider that based on the deliverables of this WG and potential impacts on the DCode should there be a recommendation from the DCRP to GCRP that this workgroup should be reconstituted as a Joint Panel Working group and where required additional DNO resources are made available to support the work of GC 0096?

GC0096 Storage – Terms of Reference

Governance

1. The Storage workgroup was established by the Grid Code Review Panel (GCRP) at the 18 May 2016 GCRP meeting.
2. The Workgroup shall formally report to the GCRP.
3. The Code Administrator and NGET Lead representatives shall ensure the deliverables of GC0096 remain in-line with the outcomes of the BEIS/Ofgem call for evidence on Flexibility. BEIS/Ofgem representation in the Workgroup will therefore be requested.

Membership

4. The Workgroup shall comprise a suitable and appropriate cross-section of experience and expertise from across the industry, which shall include:

Name	Role	Representing
Ryan Place	Chair/Technical Secretary	Grid Code - Code Administrator
Richard Woodward	Lead	National Grid System Operator
Antony Johnson	Technical Expert	National Grid System Operator
TBC	X6 Industry Representatives	Storage Developers/Operators
TBC	X6 Industry Representatives	X2 Existing Generation/Demand Users looking to co-locate Storage
TBC	Industry Representative	DNO
Shilen Shah	Authority Representative	Ofgem
TBC	Policy Representative	BEIS

Meeting Administration

Representative Workgroup at National Grid House, Warwick

5. The dates for the workgroup meetings are provided later in this document at point 13. This timetable has been formed to meet the scope and objectives of the work being undertaken in a timely manner.
6. The Grid Code - Code Administrator will provide Chair and Technical Secretary resources to the Workgroup. They will also handle administrative arrangements such as venue, agenda and minutes.
7. The Workgroup will have a dedicated section on the National Grid website to enable information such as minutes, papers and presentations to be available to a wider audience.

Scope

8. The focus of the Workgroup is to define 'Storage' in the Grid Code, where currently only 'Pump Storage' is considered. It will then seek to establish suitable technical

requirements to allow this classification of users to connect and safely operate on the GB National Electricity Transmission System (NETS).

Workgroup meeting one: “Definitions”

We will determine which Storage categories shall be the focus of the workgroup; either “Energy Storage” or “Electricity Storage”, or both. Once agreed, we will form a *high-level* working definition (noting the link to the BEIS/Ofgem call for evidence) to set the context for delivering the next workgroup deliverables. We will also consider how this definition links with existing Transmission Generation or Demand users looking to co-locate with Storage.

Workgroup meeting two-to-three – “Technical and Planning Requirements”

We will form the minimum Grid Code technical requirements applicable to Storage equipment defined above - either via a stand-alone connection or co-located with an existing user, ensuring consistency and transparency with other classes of Transmission System user.

Workgroup meeting four – “Structure”

Consideration of how (or if), the outcomes from the previous workgroup meetings need to be structured in the Grid Code via legal text changes.

Workgroup meeting five – “Next steps”

This will be an **open attendance meeting** allowing a full review of the outputs from the previous workgroups to confirm what will be written up in reports/consultations to progress any Grid Code mod proposals. It will also check the outcomes of GC0096 against the BEIS/Ofgem call for evidence published outcomes (if available).

This meeting will also set out what additional arrangements (see ‘Out of Scope’ below) may need to be considered in other GB frameworks to support Storage, and recommend items for escalation if not currently being considered.

Out of scope

The scope of the Workgroup shall not include:

- Charging arrangements for Storage; network charging is defined in other GB codes
- Commercial services for Storage; whilst the Grid Code sets certain technical requirements to deliver response services, the delivery of services is discharged via contractual agreements. This includes procedures to facilitate Aggregation and virtual Power Plants
- Connection requirements for Distribution Code; however we will coordinate with the DCRP and our DNO colleagues to ensure that GC0096 proposals are compatible

Deliverables

9. The Workgroup will provide updates and a Workgroup Report to the Grid Code Review Panel which will:
- Detail the findings of the Workgroup;
 - Draft, prioritise and recommend changes to the Grid Code and associated documents in order to implement the findings of the Workgroup; and
 - Highlight any consequential changes which are or may be required by other Code Administrators

Timescales

10. It is anticipated that this Workgroup will provide an update to each GCRP meeting and present a Workgroup Report to the May 2016 GCRP meeting.
11. If for any reason the Workgroup is in existence for more than one year, there is a responsibility for the Workgroup to produce a yearly update report, including but not limited to; current progress, reasons for any delays, next steps and likely conclusion dates.
12. An indicative timetable for GC0096 milestones is shown below.

30 th January 2017	Workgroup meeting 1 (full day)
13 th February 2017	Workgroup meeting 2 (full day)
27 th February 2017	Workgroup meeting 3 (full day)
13 th March 2017	Workgroup meeting 4 (full day)
27 th March 2017	Workgroup meeting 5 (full day)
May 2017	Submit final Workgroup Report to Panel
May 2017	Workgroup Report at Grid Code Panel
June 2017	Code Administrator Consultation published
July 2017	Deadline for responses
August 2017	Final Modification Report at Panel
August 2017	Final Modification Report submitted to the Authority
September 2017	Indicative Authority decision
September 2017	Indicative Implementation