

WELCOME

GC0156

Implementation of the Electricity System Restoration Standard

Meeting 7

20 October 2022

Online Meeting via Teams

nationalgridESO

Agenda

Topics to be discussed	Lead
Welcome	Chair
Review of Actions Log	Chair
Overview of Resilience Survey	Sade Adenola
Review of Subgroup Reports	Sade Adenola
Update on Legal Text	Tony Johnson
Draft Workgroup Consultation Questions <ul style="list-style-type: none">Consider Alternative Proposals	All
Terms of Reference <ul style="list-style-type: none">Progress check	Chair
AOB & Next Steps	Chair

Members / Alternates & Observers

Role	Name	Representing
Chair	Banke John-Okwesa	Code Administrator (ESO)
Technical Secretary	Milly Lewis	Code Administrator (ESO)
Proposer	Antony Johnson	NGESO
Proposer	Sade Adenola	NGESO
Workgroup Member	Abdi Osman	NGV Interconnectors
Workgroup Member	Alan Creighton	Northern Powergrid
Workgroup Member	Alastair Frew	Drax Power Station
Workgroup Member	*Andrew McLeod	Northern Powergrid
Observer	Andrew Larkins	Sygensys
Workgroup Member	Andrew Vaudin	EDF Energy
Observer	Audrey Ramsey	NGESO
Observer	Ben Kuchta	NGET
Workgroup Member	Bill D'Albertanson	UK Power Networks
Workgroup Member (Alternate)	Brad Kent	NGET
Workgroup Member	Brian Morrissey	SSEN Distribution
Workgroup Member	Cefin Parry	Northern Powergrid
Workgroup Member (Alternate)	Chanditha Udalagama	NGV Interconnectors
Workgroup Member	*Daniel Randles	Electricity North West Ltd
Workgroup Member	David Adam	SP Energy Networks
Workgroup Member	Dozie Nnabuife	NGESO
Workgroup Member	Eric Leavy	SP Energy Networks
Observer	Eva Shamu	NGESO
Workgroup Member	Garth Graham	SSE Generation
Workgroup Member (Alternate)	Gavin Anderson	Electricity North West Ltd
Workgroup Member	*Graeme Vincent	SP Energy Networks
Workgroup Member	Grace March	Sembcorp
Workgroup Member	Graz Macdonald	Waters Wye
Workgroup Member	Gwyn Jones	Western Power Distribution

Role	Name	Representing
Workgroup Member	Howard Downey	SP Energy Networks
Workgroup Member (Alternate)	John Costa	EDF Energy
Workgroup Member (Alternate)	Lisa Waters	Waters Wye
Observer	Mark Bingham	NGET
Observer	Mark Holland	Scottish & Southern Electricity Networks Transmissions
Workgroup Member	*Michelle Macdonald	Scottish & Southern Electricity Networks Transmissions
Observer	Mike Kay	Distribution Code Administrator
Observer	Neha Gupta	NGESO
Observer	Neil Sandison	Scottish & Southern Electricity Networks Transmissions
Workgroup Member	Nikhil Singh	NGET
Observer	Paul Murray	Scottish & Southern Electricity Networks
Workgroup Member (Alternate)	Paul Youngman	Drax Power Station
Workgroup Member	Peter Couch	Joint Radio Company Limited
Workgroup Member	Priyanka Mohapatra	Scottish Power
Workgroup Member	*Richard Poole	NGV Interconnectors
Workgroup Member (Alternate)	Richard Wilson	UK Power Networks
Workgroup Member	Robert Longden	Eneco Energy Trade BV
Workgroup Member (Alternate)	Ross Strachan	Scottish Power
Workgroup Member	Tolu Esan	Electricity North West Ltd
Authority Representative	Christopher Statham	Ofgem

*Lead / voting member

Expectations of a Workgroup Member

Contribute to the discussion

Be respectful of each other's opinions

Language and Conduct to be consistent with the values of equality and diversity

Do not share commercially sensitive information

Be prepared - Review Papers and Reports ahead of meetings

Complete actions in a timely manner

Keep to agreed scope

Your Roles

Help refine/develop the solution(s)

Bring forward alternatives as early as possible

Vote on whether or not to proceed with requests for Alternatives

Vote on whether the solution(s) better facilitate the Code Objectives



Timeline

Banke John-Okwesa – National Grid ESO Code Administrator

Timeline for GC0156

Milestone	Date	Milestone	Date
Proposal Presented to Panel	24 February 2022	Workgroup 10 – Review updated WG report and legal text following consultation responses, finalise solution(s) and legal text	31 January 2023
Workgroup 1 – Understand / discuss proposal and solution, review and agree on Terms of Reference and Timeline, agree next steps	26 April 2022	Workgroup 11 – Agree that Terms of Reference have been met, Review Workgroup Report and hold Workgroup Vote	21 February 2023
Workgroup 2 – Review high level options and legal text, consider outputs from related modifications (such as GC0148)	19 May 2022	Workgroup Report issued to Panel	23 March 2023
Workgroup 3 – Recap of GC0148 and Distributed Re Start, Subgroup ToR, Review of high level solutions / options	16 June 2022	Panel sign off that Workgroup Report has met its Terms of Reference	30 March 2023
Workgroup 4 – Review draft legal text, finalise scope and function of subgroups, develop solution(s)/options, identify/asses any possible alternative solutions	14 July 2022	Code Administrator Consultation	03 April 2023 – 03 May 2023
Workgroup 5 – Develop solution(s)/options, subgroup outputs, conclude on preferred options / consider and agree on alternatives	18 August 2022	Draft Final Modification Report (DFMR) issued to Panel	17 May 2023
Workgroup 6 - Develop WG consultation questions, progress of draft legal texts, subgroup updates, assess alternatives (if applicable)	20 September 2022	Panel undertake DFMR recommendation vote	25 May 2023
Workgroup 7 – Refine WG consultation report, review subgroup reports, review legal texts, agree alternatives	20 October 2022	Final Modification Report issued to Panel to check votes recorded correctly (5 working days)	29 May 2023 – 02 June 2023
Workgroup 8 – Finalise Workgroup Consultation report, finalise draft legal text	10 November 2022	Final Modification Report issued to Ofgem	05 June 2023
Workgroup Consultation (15 Working Days)	21 November 2022 – 09 December 2022	Ofgem decision	TBC
Workgroup 9 – Review/assess consultation responses	17 January 2023	Implementation Date	10 working days after Ofgem decision



Review of Actions Log

Banke John-Okwesa – ESO Code Administrator



Action Number	Workgroup raised	Owner	Action	Comment	Due by	Status
15	WG3	DNO Workgroup Members	Provide feedback/learnings from the impact of recent storms	BM taken action to update in WG5	WG4	Open
24	WG4	TJ	Start developing ESRS including Distributed Restart legal text		Ongoing	Open
26	WG5	GG	Summarise and circulate AC summary		ASAP	Open
28	WG5	TJ	Feedback further meetings with Tendering Team		WG6	Open
30	WG5	AF	Send drafting email on frequency control with Distributed <u>ReStart</u>		WG6	Open
31	WG5	BJO/TJ	Work together to build a draft legal text diary session		WG6	Open
33	WG6	AL	Share Aggregator info to SA and BJO to ensure that they have been captured in the BEIS resilience questionnaire		ASAP	Open
34	WG6	SA	Share high level findings of BEIS resilience questionnaire		WG7	Open
35	WG6	SA	Extend Future Networks subgroup meeting to all the DNOs within the Communication subgroup		WG7	Open
36	WG6	SA/DN	Define 3 key questions and invite IT specialists to subgroup meeting to resolve the Assurance subgroup escalation		WG7	Open
37	WG6	TJ	Confirm when legal text review is possible		WG7	Open

Action 15: Impacts of Storms - Feedback from SSEN

We found that during recent storms a number of generators self-despatched once supplies had returned, we saw that with around 30% of small generation sets. In addition to that a further 25%-30% were either contacted or made contact with out control centre. The remaining took slightly longer to start due to needing site attendance, replace batteries or dry out wind turbines.



Overview of Resilience Survey

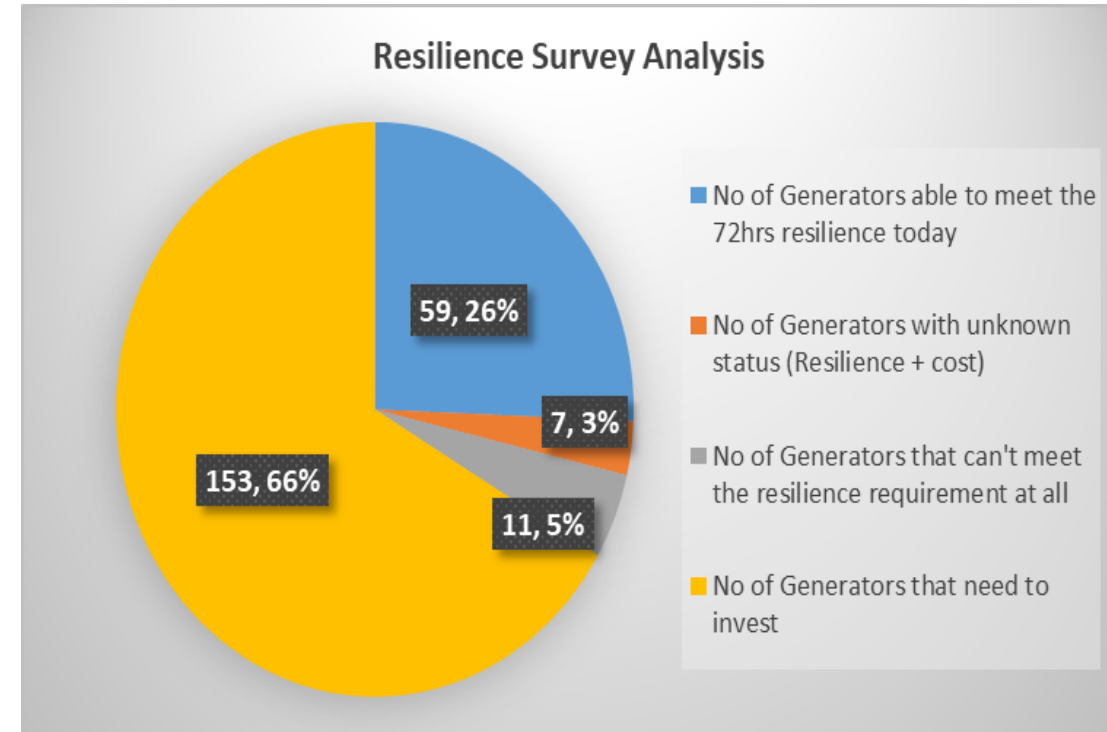
Sade Adenola – National Grid ESO



Overview of Resilience Survey Responses as at 07 Oct

BEIS, on behalf of ESO, issued a survey to all CUSC signatories to understand the current position with respect to resilience and what it would take to enhance their resilience level to 72hrs.

- Total number of Generators contacted - 670
- Total number of Responses - 230
- Number of generators with existing 72hrs resilience - 59
- Number of generators that would need to invest-153
- Number of generators unsure of costs and resilience level – 7
- Number of generators that can't meet the resilience requirement - 11



Survey Questions

Question	Answer
1) Please state your power station and/or HVDC System and/or DC Converter Station name.	
2) Please state how long from the system shutdown you are able to protect your plant etc so that it can be restarted as described above, e.g. if your power station or HVDC System or DC Converter Station is without external power for 36 hours, will your standby systems etc last this long? If not, how long can you protect your plant for, so that it can be in an appropriate state of readiness when supplies are restored at the Connection Point?	
3) Are you able to confirm that if your Power Station, HVDC System or DC Converter Station is without external supplies for a prolonged period of time having tripped as a result of a System Shutdown, it would not prohibit the return to service of that plant in normal operational timeframes following the restoration of supplies at the connection point. In other words, the loss of supplies would not result in major plant component failure necessitating a long term outage?	
4) If you are not able to protect your plant etc from your standby supplies for 72 hours, please explain what you would need to do to achieve this, and an approximate order of the costs of doing so.	



Review of Subgroup Reports

Sade Adenola – National Grid ESO



GC0156 Subgroup Update

- **Future Network – Final meeting planned for 21 Oct 2022**
- **Communications Infrastructure – Dissolved on 12 Oct**
- **Assurance Activities – Dissolved on 13 Oct**
- **Markets and Funding Mechanism - Dissolved on 11 Oct**
 - **CUSC & BSC Mod**

Communications Infrastructure Subgroup Escalation

Is 72hrs resilience compatible with the new ESRS standard??

Initial thoughts –

- This requirement is supported by ENA G91 recommendations for substations
- GC0148 Consultation Responses supports 72hrs resilience

GC0156 Subgroup Members

	Communication Infrastructure	Future Networks	Assurance Framework	Markets & Funding Mechanisms
SP Energy Networks	Howard Downey	Graeme Vincent / Eric Leavy	Graeme Vincent	-
Independent	Mike Kay	Mike Kay	Mike Kay	-
SSE Generation	Garth Graham	Garth Graham	Garth Graham, Andrew Colley	Garth Graham
SSE Transmission	Mark Dunn	Mark Holland / Paul Swan	Michelle MacDonald	David <u>Boyland</u>
Northern Powergrid	Cefin Parry	Alan Creighton Andrew McLeod	Andrew McLeod, Alan Creighton	-
Sygensys	Andrew Larkins	Andrew Larkins	-	-
ENWL	Tolu Esan	Gavin Anderson, Tolu Esan	-	-
Joint Radio Company Ltd	Peter Couch	Peter Couch	-	-
NGET	Nikhil Singh & Mark Bingham	Nikhil Singh, Bradley Kent, Arash Rakhshafar	Nikhil Singh, Bradley Kent, Richard Woodward	Nikhil Singh, Thomas Charton, Arash Rakhshafar
ESO	Sade Adenola, Tony Johnson, Mark Jones, Neha Gupta, Dozie Nnabuife, Svetlana Afanasyeva, Llewellyn Hoenselaar	Sade Adenola, Tony Johnson, Mark Jones, Neha Gupta, Dozie Nnabuife, Svetlana Afanasyeva	Sade Adenola, Tony Johnson, Mark Jones, Neha Gupta, Dozie Nnabuife	Sade Adenola, Tony Johnson, Mark Jones, Neha Gupta, Dozie Nnabuife, Roopkamal Phull, Steve Miller, Llewellyn Hoenselaar
Diamond Transmission	-	Joel Matthews	-	-
<u>Elexon</u>	-	-	-	Nick Rubin
Western Power	Andrew Baker, Phil <u>Ridgen</u>	-	-	
Scottish Power	Priyanka Mohapatra	Priyanka Mohapatra	Priyanka Mohapatra	Priyanka Mohapatra
Drax	-	Alastair Frew	-	Paul Youngman

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Updates on Legal Text

Tony Johnson – National Grid ESO

Electricity System Restoration Standard

GC0156

October 2022



Summary

- GC0148 Update
- Terms and Conditions
- GC0156 Subgroups
- Impact of ESRS on the Regulatory Framework
- Grid Code Drafting Progress Update
- Next Steps
- Related Work

GC0148 Update

- The GC0148 Code Administrator Consultation closed on 5th September 2022
- The Draft Final Modification Report was presented at the September GCRP
- Decision expected from Ofgem in early December
- The STC Panel have been informed of this work and the consequential changes expected to the STCP's.

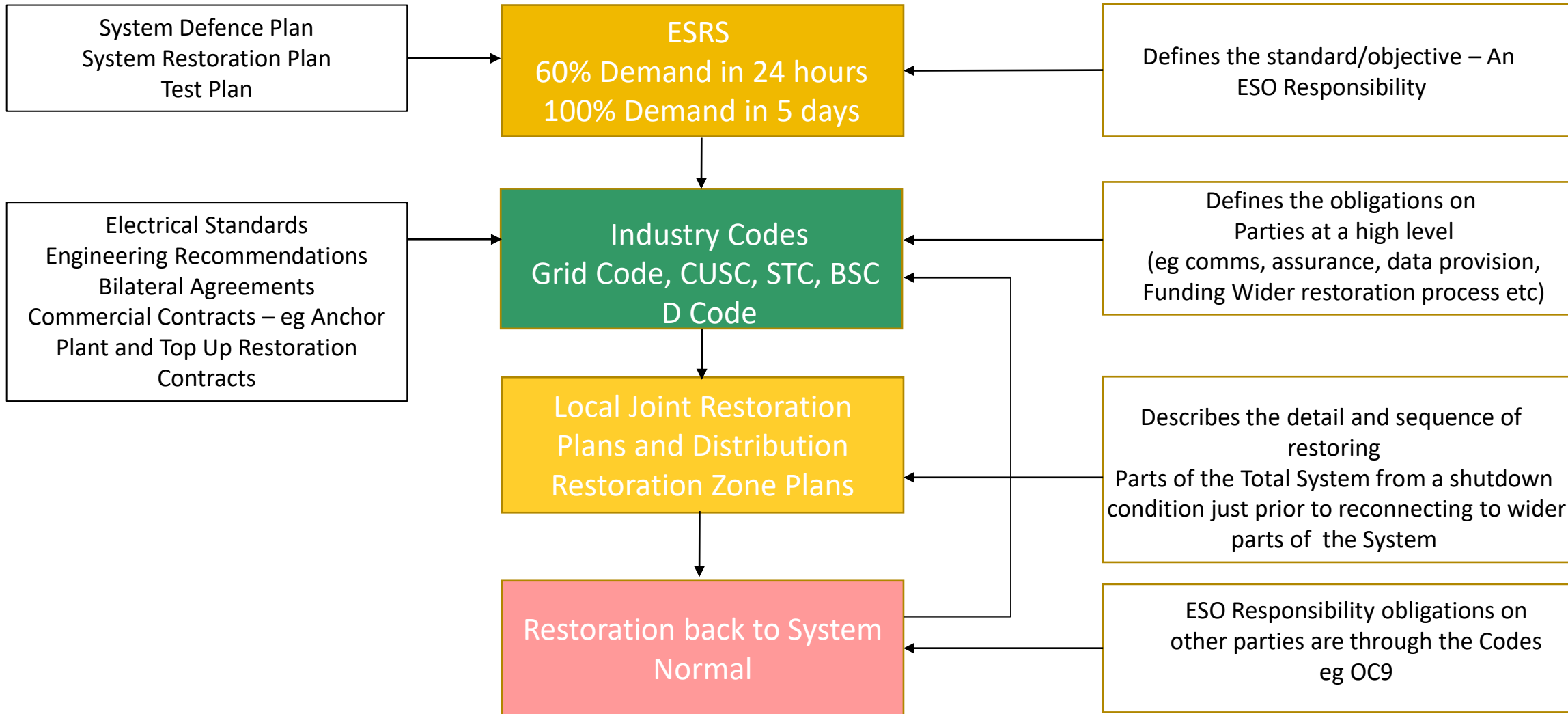
EU Terms and Conditions

- Discussions also held with BEIS and Ofgem on 18th August
- Further meeting held with Ofgem on 25th August
- The issues have been raised with the Tender Team and ways forward have been forwarded to the ESO legal team for a view
- The view from our lawyers is that the current terms and conditions permit a party to contribute to one or more of i) the Re-energisation procedure or ii) the Resynchronisation Procedure or the iii) Frequency Deviation Management Procedure
- This would not prevent the contribution from Top Up Restoration Service Providers and as such should not prevent the participation of such parties to the South East Tender or Northern Tender.
- The view of our lawyers has been shared with Ofgem who have also shared this view with their Legal Team.

GC0156 Subgroups

- As part of the GC0156 Modification, four subgroups have been established to consider the following issues
 - Future Networks
 - Markets and Funding
 - Assurance
 - Communications
- The four subgroups have discussed the issues and the reports have been circulated to subgroup members for comment
- The Legal text reflects the issues reflected in the subgroup reports.

Impact of ESRS on the Regulatory Framework



GC0156 – Grid Code Drafting – Progress Update

- The current sections of the Grid Code are well developed and have been circulated to the Subgroup and GC0156 Workgroup
 - Glossary and Definitions
 - Planning Code
 - European Connection Conditions
 - Operating Code 2
 - Operating Code 5
 - Operating Code 9
 - Balancing Code 2
 - Balancing Code 4
 - General Conditions
- Note:- The Connection Conditions (CCs) and Data Registration Code (DRC) will follow when the legal text is more advanced as they are largely duplicates from the above sections of code.

GC0156 – Glossary and Definitions

- The updates to the Glossary and Definitions includes the following key features
 - Removal of the term Black Start and related terms
 - Introduce the concept of Anchor Plant and related terms
 - Introduce the concept of Top Up Restoration Plant and related terms
 - Introduce the necessary and applicable definitions for Distributed Re-Start developed as part of the GC0148 work
 - Ensure equal treatment of Anchor Plant and Top Up Restoration Plant irrespective of being Transmission or Distribution Connected or part of a Local Joint Restoration Plan or Distribution Restoration Zone Plan
 - Provide clarity on the definition of Restoration Service Provider

GC0156 – Planning Code

- The updates to the Planning Code includes the following key features
 - The main changes relate to PC.A.5.7 (currently drafted as Black Start Related Information)
 - Removal of the term Black Start and related terms
 - Build on the comments introduced through GC0148 including those developed for Distributed Re-Start
 - Include information relating to the supply of data from Network Operators relating to the establishment of Distribution Restoration Zones
 - Availability of Restoration Service Providers and Distribution Restoration Zones

GC0156 – European Connection Conditions

- The updates to the European Connection Conditions includes the following key features
 - Removal of the term Black Start and related terms
 - Builds on the comments introduced through GC0148 including Critical Tools and Facilities including communications and Cyber security
 - Builds on the additions developed for Distributed Re-Start including the comments received as part of the GC0148 Workgroup Consultation
 - Introduce requirements for Restoration Offshore
 - Amend the provisions relating to System Restoration – ECC.6.3.5
 - Make provisions for Assurance requirements – ECC.7.11 (new Section)
 - Make provision for a new standard for a Distribution Restoration Control System (DRZC)
 - Make provisions for the technical requirements in a new Appendix (Appendix E8) covering those common elements that would currently form part of the Black Start Contract or Anchor Restoration Contract or Top Up Restoration Contract

GC0156 – Operating Code 2

- The updates to the Operating Code 2 includes the following key features
 - Explicitly defines the notification of outages and unavailability of Restoration Service Providers where this has not previously been provided
 - Explicitly defines the notification of outages and unavailability of Distribution Restoration Zones
 - Views of the Subgroup and Workgroup are sought to see if the drafting works
 - Operating Code 2 as currently drafted has no reference to Black Start.

GC0156 – Operating Code 5

- The updates to the Operating Code 5 includes the following key features
 - Removal of the term Black Start and related terms
 - Builds on the additions developed for Distributed Re-Start including the comments received as part of the GC0148 Workgroup Consultation
 - Seeks to provide some rationalisation and avoid duplication as Anchor Plant and Top Up Plant are broadly the same irrespective of being Transmission or Distribution Connected
 - Includes Assurance Testing and desk top exercises especially against the requirements of CC/ECC.7.10 and CC/ECC.7.11
 - Addresses the house keeping change to OC5.7.1(b)(i) which is a correction arising from the implementation of GC0108 (EU Code: Emergency & Restoration: Black start testing requirement) noting that OC5.7 is now significantly different

GC0156 – Operating Code 9

- The updates to the Operating Code 9 includes the following key features
 - Defines what the ESRS is and its key objectives
 - Removal of the term Black Start and related terms
 - Builds on the additions developed for Distributed Re-Start including the comments received as part of the GC0148 Workgroup Consultation
 - Recognises a significant change in structure of OC9 to reflect Distribution Restoration Zones
 - Seeks to provide some rationalisation and avoid duplication as Anchor Plant and Top Up Plant are broadly the same irrespective of being Transmission or Distribution Connected
 - Some further work is required to see if any specific requirements need to be explicitly defined in respect of Offshore Transmission Licensees

GC0156 – Code Drafting – Next Steps

- Seek comments from the GC0156 subgroups
- Legal text circulated and any comments requested back by 21 October 2022
- Other members and stakeholders of the GC0156 Workgroup are also welcome and invited to provide comments.
- Once comments have been received a further update of the codes will be made and the Connection Conditions and Data Registration Code will also be prepared
- These comments will then be used to update the legal text which will form the basis of the GC0156 Workgroup Consultation

GC0156 – Related Work

- Once the Grid Code drafting is more clearly established the following work is also required
 - Updates or creation of any related Relevant Electrical Standards (eg Distribution Restoration Control Systems)
 - Consideration of other Code Mods – eg STC, SQSS, CUSC and BSC
 - System Defence Plan, System Restoration Plan and Test Plan
 - It is assumed Embedded Offshore Transmission Systems (ie Offshore Transmission Systems connected to DNO's) will form part of an LJRP not a DRZP

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Draft Workgroup Consultation Questions

Workgroup

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Terms of Reference

Banke John-Okwesa – ESO Code Administrator

AOB / Next Steps

Banke John-Okwesa – ESO Code Administrator

Next Steps

- Finalise draft legal texts / solutions
- Finalise Workgroup Consultation Draft Report
- Finalise Workgroup Consultation questions