

# WELCOME

## GC0156

# Implementation of the Electricity System Restoration Standard

Meeting 5

18 August 2022

Online Meeting via Teams

**nationalgrid**ESO

# Agenda

Topics to be discussed	Lead
Welcome	Chair
Updates from BEIS <ul style="list-style-type: none"><li>Clarification of the definition of Electricity Demand</li></ul>	Abigail Clarke
Response to Pending Queries <ul style="list-style-type: none"><li>Definition of Terminologies</li></ul>	Sade Adenola
Updates from Subgroup Discussions	Sade Adenola
Updates on Legal Text Drafting	Tony Johnson
Terms of Reference <ul style="list-style-type: none"><li>A look through</li></ul>	Chair
AOB & Next Steps <ul style="list-style-type: none"><li>Review and discuss solutions / draft legal text</li><li>Updates from subgroups</li></ul>	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
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	Colin Foote	SP Energy Networks
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
Workgroup Member	Howard Downey	SP Energy Networks

Role	Name	Representing
Observer	Ben Kuchta	NGET
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
Observer	Mark Jones	NGESO
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



# 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 and report, assess alternatives (if applicable)	20 September 2022	Panel undertake DFMR recommendation vote	25 May 2023
Workgroup 7 – Refine WG consultation report and 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 and 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
17	WG3	MK	Update on linked Distribution Code Modification		WG4	Open
19	WG4	SA	Share BEIS direction to the ESO on ESRS document with Workgroup		Ahead of next ESRS SG	Open
20	WG4	SA	Share and escalate the collated concerns on the back of the demand definition with the Steering group		Ahead of next ESRS SG	Open
21	WG4	TJ	Set up call with Tendering Team to discuss <u>Ts&amp;Cs</u> regarding Northern Tender and share with industry parties		WG5	Open
22	WG4	TJ	Update slide 7 based on feedback and share ESRS overview slide previous		WG5	Open
23	WG4	AC/TJ	Work through with those which have commented on Distributed Restart legal text		WG5	Open
24	WG4	TJ	Start developing ESRS including Distributed Restart legal text		Ongoing	Open
25	WG4	BJO	Understand Cross Code Impacts and manage with CUSC and STC rep		WG5	Open

# Updates from BEIS

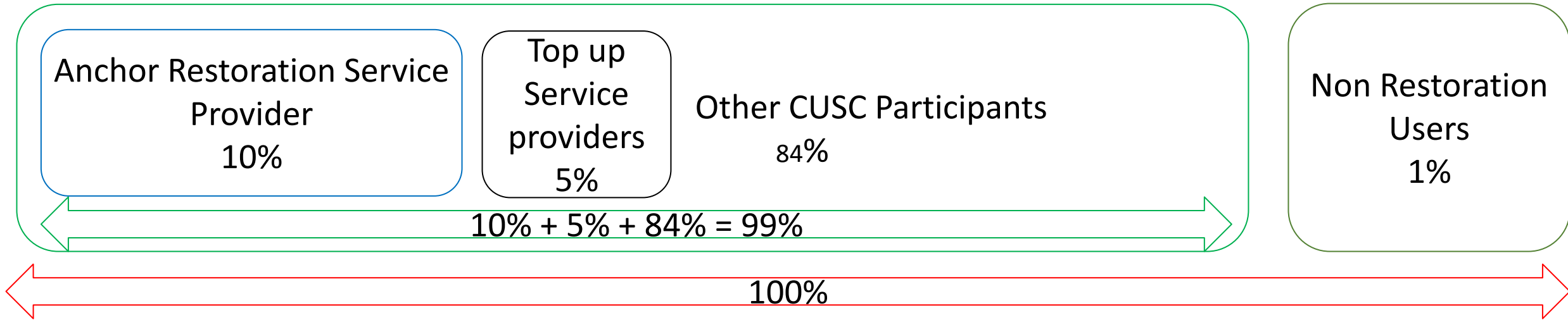
Abigail Clarke – BEIS



# Definition of Terminologies

Sade Adenola – National Grid ESO

# Categories on the Transmission Network



**Anchor Restoration Service Providers** are a subset of CUSC participants and have additional Restoration Service/Commercial Contract

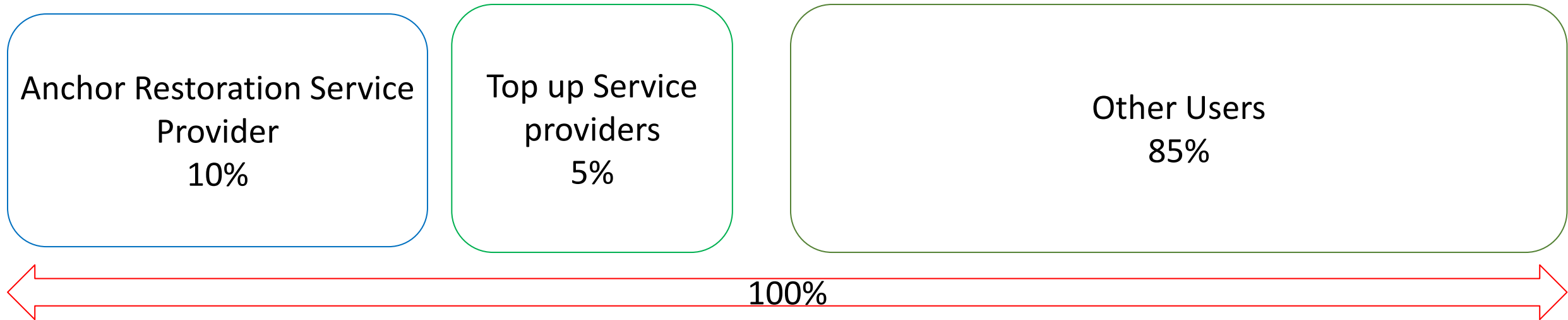
**Top up service providers** are a subset of the CUSC Participants that have a contract to provide some services, excluding self starting capability, over and beyond the CUSC obligations.

**Other CUSC participant** are legally bound to satisfy the requirements of the Grid Code without specific additional remuneration unless provided for under the existing arrangements within BSC Section G

**Non Restoration Users** have no obligations to contribute towards Restoration

Note,  
Users is as defined in the Grid Code and Distribution Code.  
Percentages are speculative for context and not actuals.

# Categories on the Distribution Network



**Anchor Restoration Service Providers** have a Restoration Service/Commercial Contract

**Top up service providers** have a Restoration Service/Commercial Contract to provide some services, excluding self starting capability

**Other Users** have no commercial contract, no resilience, no resilient comms and could potentially re-synchronise sporadically. Bound by the requirements of the DCode (G99/G98)

The background features several decorative yellow lines. In the top left, there are several thin, curved lines that sweep upwards and to the right. In the bottom right, there are several thick, parallel diagonal lines that sweep upwards and to the right, creating a sense of movement and energy.

# Updates from Subgroups

Sade Adenola – National Grid ESO



**GC0156 Subgroup Members**

	<b>Communication Infrastructure</b>	<b>Future Networks</b>	<b>Assurance Framework</b>	<b>Markets &amp; Funding Mechanisms</b>
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 Boyland
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 Ridgen			

The background features several thick, flowing yellow lines that sweep across the slide, creating a sense of movement and energy. These lines are primarily located on the left and bottom edges, framing the central text.

# Updates on Legal Text

Tony Johnson - National Grid ESO

# Summary

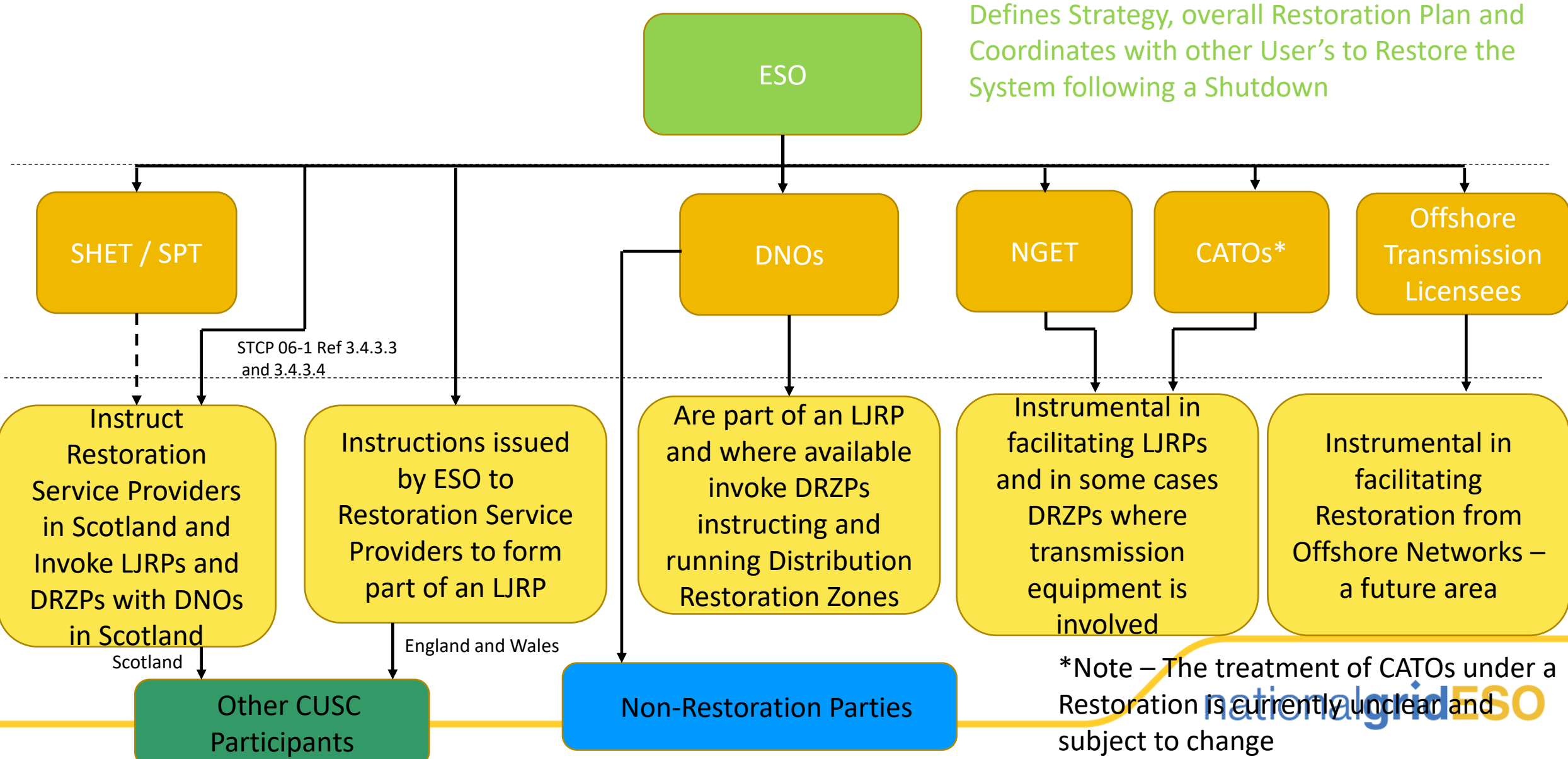
- GC0148 Update
- ESRS Overview
- Terms and Conditions
- Grid Code Drafting Update
- Offshore
- Code Drafting Next Steps

## GC0148 - Summary

- The last GC0148 meeting was held on 11 July to discuss final changes against the Grid Code Baseline
- The Workgroup Report and Legal Text were presented to Panel on the 28<sup>th</sup> July and it was agreed GC1048 should proceed to Code Administrator Consultation
- The GC0148 Consultation was issued on 3<sup>rd</sup> August and will close on the 5<sup>th</sup> September



# ESRS - Overview



# Electricity Supply Restoration Standard – Overview

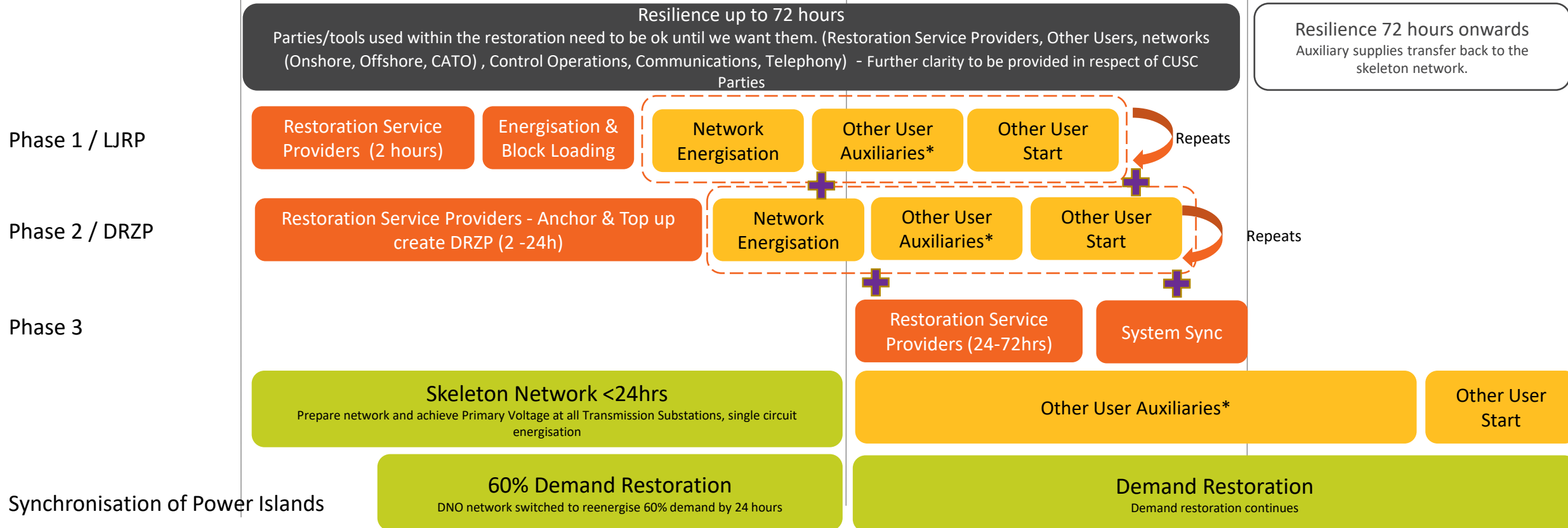
Assurance Framework

Operational Processes

System Shutdown  
Blackout State Declared  
Restoration State Declared

24 Hours

72 Hours



+ Synchronisation of Power Islands

\* Other User's Auxiliaries covers CUSC Parties and Restoration Service Providers

# EU Terms and Conditions (1)

- The EU Terms and Conditions are a requirement of Article 4(2) and 4(4) of the EU Emergency and Restoration Code (2017/2196) which has now been moved into SI 533 2019
- They were developed as part of Grid Code modification GC0127 and GC0128 in 2019 as part of the implementation of the Emergency and Restoration Code – before ESRS and Distributed Re-Start was considered
- The Terms and Conditions are available at:-
  - <https://www.nationalgrideso.com/document/160021/download>
- Ofgem's decision letter is available at:-
  - <https://www.nationalgrideso.com/document/204801/download>
- In their decision letter, Ofgem note that the Terms and Conditions may require amendment in lieu of the introduction of the Electricity System Restoration Standard

## EU Terms and Conditions (2)

- The current Terms and Conditions state:-
  - Restoration services:
  - Re-energisation procedure OC.9.2.5, OC.9.4.7
  - Re-synchronisation procedure OC.9.4.7, BC2.9.2.2(iii))
  - Frequency deviation management - BC3.4, BC.3.5, BC3.6, BC3.7 BC2.5.4
- This requires Restoration Service Providers to all three services which at the time they were developed seemed appropriate
- This results in the inability to segregate Anchor Plant and Providers in respect of Top Up Services and it also causes issues for the current Restoration Tenders
- Going forward it is proposed to consider a long term and short term approach



# EU Terms and Conditions – Short Term Approach

- The proposal would be for the Terms and Conditions to be amended as follows
  - Restoration services *which may include contribution to one or more of the following requirements:*
    - Re-energisation procedure OC.9.2.5, OC.9.4.7
    - Re-synchronisation procedure OC.9.4.7, BC2.9.2.2(iii))
    - Frequency deviation management - BC3.4, BC.3.5, BC3.6, BC3.7 BC2.5.4
- Any such change would need to go through the appropriate Governance Arrangements
- A meeting has been arranged with Ofgem and BEIS to discuss this approach
- It is hoped that this approach could also be used to facilitate the future Tender work enabling greater participation.

# EU Terms and Conditions – Long Term Approach

- As a long term enduring solution it is proposed to incorporate the Terms and Conditions into the Balancing Services Contracts which are governed by the C16 process
- Ofgem have the ability to review and comment on these and it makes sense to have one contract with all the requirements in one place rather than separate contracts
- We will develop this approach through the GC0156 Work which will be included within the Workgroup Consultation Phase

# GC0156 – Grid Code Drafting – Progress Update

- The current sections of the Grid Code are currently in the process of development
  - Glossary and Definitions
  - Planning Code
  - Connection Conditions
  - Operating Code 5

# 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



# 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

# GC0156 – Connection Conditions

- The updates to the 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
  - Builds on the additions developed for Distributed Re-Start including the comments received as part of the GC0148 Workgroup Consultation
  - Amend the provisions relating to System Restoration – CC.6.3.5
  - Make provisions for Assurance requirements – CC.7.11 (new Section)
  - Make provisions for the technical requirements in a new Appendix (Appendix 8) 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 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
  - Will address a house keeping change to OC5.7.1(b)(i) which is a correction that needs to be addressed following the implementation of GC0108 (EU Code: Emergency & Restoration: Black start testing requirement)
  - Currently still in the drafting stage

# GC0156 – Offshore

- Code drafting will need to enable Offshore Generation and Transmission to participate in Restoration
  - In future a significant volume of Generation will come from Offshore
  - It is vital to utilise this resource if the System to contribute to System Restoration
  - There are two challenges
    - Current Grid Code requirements do not fit well with the technical requirements in Restoration Contracts
    - The STC and in particular STCP 06-1 specifically excludes Offshore Transmission from contributing to System Restoration
  - So far as the Grid Code is concerned it is proposed to include the common technical requirements from the Contracts and place them in the Grid Code in addition to addressing points of conflict – eg Offshore Reactive Capability
  - So far as the STC is concerned it is proposed to update the STC and in particular STCP 06-1 to enable Offshore Transmission to participate in Restoration
  - For the wider Offshore Work, the ESO Offshore Project Team have been informed to ensure Restoration is included in the design process
  - In the immediate future there is also an issue with the Tender process

# GC0156 – Code Drafting – Next Steps

- Continue to develop the Grid Code drafting in line with the Workgroup discussions and those raised as part of the GC0156 Workstreams
  - Further areas of development include but are not limited to
    - European Connection Conditions
    - Operating Code 2
    - Operating Code 9
    - Balancing Code 2
    - Other consequential sections including the Data Registration Code
- Further consideration needs to be given to Offshore and the interaction with the tender process

The slide features several decorative yellow lines. In the top left, there are several thin, curved lines that sweep across the upper portion of the slide. In the bottom right, there are three thick, parallel diagonal lines that extend from the bottom left towards the top right. A yellow line also runs horizontally along the bottom edge of the slide, with a small step-like cutout on the right side.

# Terms of Reference

Banke John-Okwesa – ESO Code Administrator



# AOB / Next Steps

Banke John-Okwesa – ESO Code Administrator

- Review and discuss solutions / draft legal text
  - Updates from subgroups