



## **STC Panel**

Wednesday 22 February 2023

Online Meeting via Teams

# WELCOME



# Minutes

## Approval of Panel Minutes from the Meeting held

25 January 2023



# Review of Actions within Action Log



# Authority Decisions and Update



## Decisions Received since last Panel meeting

- ❑ **CM084 - Clarify STCP modification approach for cross-code changes** - Decision received 31 January 2023 – implemented 14 February 2023

## Decisions Pending

- ❑ **CM078 - Connections Triggering Distribution Impact Assessment** - Expected decision date of this and related CUSC Modification (CMP328) was 14 February 2023
- ❑ **CM080 – Transmission Impact Assessment process** - Expected decision date of this and related CUSC Modification (CMP298) is 28 February 2023
- ❑ **CM085 - To clarify OFTO reactive power requirements at <20% output** - Expected decision date is 31 March 2023



## **New STC/STCP Modifications**

**CM089: Implementation of the  
Electricity System Restoration  
Standard**

**PM0128: Implementation of the  
Electricity System Restoration  
Standard**

**Tony Johnson— National Grid ESO**

An aerial photograph of rolling green hills, likely a vineyard, with several bright yellow light streaks or beams of light cutting across the landscape from the bottom right towards the top left. The hills are covered in dense green vegetation, and the light streaks create a sense of energy and modern technology.

# Electricity System Restoration Standard

STC Panel Presentation

February 2023

# Facilitation of the Electricity System Restoration Standard (ESRS)

Special Condition 2.2 of National Grid's Electricity System Operator's Transmission Licence, the Electricity System Restoration Standard (ESRS) was introduced in October 2021 and requires

- a. 60% of electricity demand being restored within 24 hours in all regions;
- and
- b. 100% of electricity demand being restored within 5 days nationally.

The purpose of this direction is to require that the ESO

- a) Ensures and maintains an electricity restoration capability; and
- b) Ensures and maintains the restoration timeframe.
- c) Replace the definition of "Black Start" with "System Restoration"

The aim is to restore the system and supplies as quickly as possible in the most economic manner

# Proposed High Level Grid Code Changes

Grid Code Section	Summary of Update
Glossary and Definitions	Introduction of new definitions – changes to some existing definitions
Planning Code	Data reporting for Restoration Service Providers and Parties forming part of a Distribution Zone
Connection Conditions/European Connection Conditions	Changes to Protection, Control and Governor Settings, amendments to Offshore to enable Offshore Generation to participate in Restoration, broad normalisation of Anchor Plant and Top Up Restoration Plant, introduction of Distribution Restoration Zones/obligations on Network Operators, reinforcement of Critical Tools & Facilities, introduction of Assurance activities
OC1	Notification Demand Data for System Restoration Purposes
OC2	Outage data in respect of Restoration Service Providers and Network Operators
OC5	Enhanced Testing and Assurance requirement including deadline charge and remote Synch tests
OC9	Fundamental restructure to include Local Joint Restoration Plans and Distribution Restoration Zone Plans
BC2, BC4 & General Conditions	Consequential changes
Data Registration Code	Consequential data changes

# Proposed STC /STCP Changes

- As part of this process some changes will be required to the STC and STCP's most of which are consequential
- Some of the mods to the STCPs (especially STCP 06-1) will be material as it will introduce the concept of Offshore Local Joint Restoration Zone Plans as well as Distribution Restoration Zone Plans .

## STC Changes

- Section C (Transmission Services and Operations) – Section C Part Three, Item 5, Item 6
- Section J (Interpretation and Definitions) – Change definitions in particular Black Start
- Schedule 2 (List of Code Procedures) – Change name of STCP 06-1 to “System Restoration”
- Schedule 3 (Information and Data Exchange Specification) - Introduction of Distribution Restoration Zone Plans

# Expected STCP Changes (1)

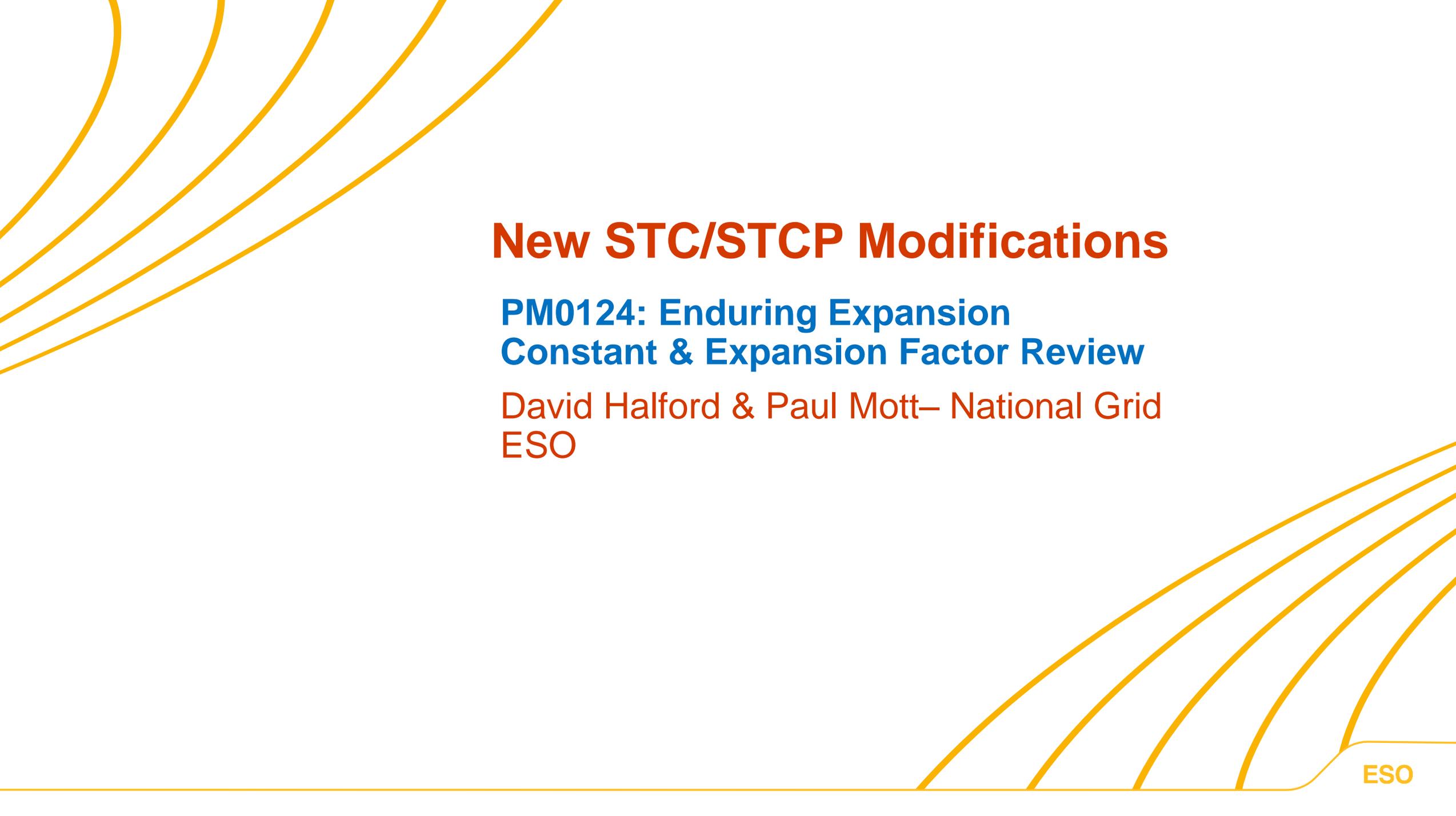
- STCP 04-5 (Operational Telephony)
- STCP 04-6 (Offshore Datalink Functional Specification for Telecontrol Communications Interface)
- STCP 06-1 (Black Start)
- STCP 06-2 (De-Synchronised Island Management)
- STCP 06-3 (System Incident Management)
- STCP 06-4 (Contingency Arrangements)
- STCP08-1 (Protection Testing)
- STCP08-3 (Operational Tests and System Tests)
- STCP08-4 (User Tests)
- STCP 08-3 (Operational Tests and System Tests)
- STCP 11-1 (Outage Planning)
- STCP 11-2 (Outage Data Exchange)
- STCP16-1 (Investment Planning)
- STCP 18-1 (Connection and Modification Application)
- STCP 19-3 (Operational Notification and Compliance Testing)
- Others?

# Asks to Panel

- Panel to advise on the Modification route for STCP( considering the material nature of some of the changes).
- Work group constituted for STC modifications

# Timeline for CM089 – Standard Governance - Workgroups

Milestone	Date	Milestone	Date
Proposal Presented to Panel	14 December 2022	Panel sign off that Workgroup Report has met its Terms of Reference	27 September 2023
Workgroup 1 – Understand / discuss proposal and solution, note the scope and identify any possible alternative solutions, agree timeline and review terms of reference, agree next steps.	24 January 2023	Code Administrator Consultation	09 October 2023 – 30 October 2023
Workgroup 2 – Review of legal text Theme 1 – General & Theme 2 – Technical Operations	1 March 2023	Draft Final Modification Report (DFMR) issued to Panel	21 November 2023
Workgroup Consultation	05 June 2023 – 05 July 2023	Panel undertake DFMR recommendation vote	25 November 2023
Workgroup 3 - (Post Workgroup Consultation) – Review / assess Workgroup consultation responses and Workgroup Report.	18 July 2023	Final Modification Report issued to Panel to check votes recorded correctly (5 working days)	29 November - 06 December 2023
Workgroup 4 – Finalise solution(s) and legal text, agree that Terms of Reference have been met, Review Workgroup Report and hold Workgroup Vote	15 August 2023	Final Modification Report issued to Ofgem	11 December 2023
Workgroup Report issued to Panel	19 September 2023	Ofgem decision	TBC – Required by Q4 2023
		Implementation Date	31 December 2026



# **New STC/STCP Modifications**

## **PM0124: Enduring Expansion Constant & Expansion Factor Review**

David Halford & Paul Mott– National Grid  
ESO



# CMP315 and CMP375: Enduring Expansion Constant & Expansion Factor Review STCP Consequential Modification – PM0124

22 February 2023

David Halford, NGESO

# Overview of CMP315 & 375 Modifications

## What is the issue?

- As approved under CMP353, the CUSC currently specifies that the Expansion Constant (EC) and associated generic onshore Expansion Factors (EF) are fixed at the value used in 2020/21 plus relevant inflation for each following year.
- Without establishing and implementing an enduring solution for the calculation of the EC and EFs there is a risk that the charging methodology will not appropriately reflect the incremental costs of the system to Users.
- **CMP315 (TNUoS: Review of the Expansion Constant and elements of the Transmission System charged for) & CMP375 (Enduring Expansion Constant and Expansion Factor Review)**, seeks to review and amend the calculation of the Expansion Constant & Expansion Factors to better reflect the growth of and investment in the National Electricity Transmission System (NETS).
- This proposal will have a high potential impact on all Users who pay TNUoS charges, ESO and Onshore Transmission Owners.

## How is the modification being managed?

- CMP315 & 375 are being progressed together as a Standard Governance modification with workgroups currently on-going.
- **Consequential changes to STC Procedures will be required to facilitate these proposals.**

# CUSC Modification Progress and STCP Impacts

- The Workgroup Consultation has been completed with the Workgroup agreeing the options which will go forward into the Workgroup Report and ultimately to the Authority for determination:
  - CMP315 – Original Proposal
  - CMP375 – Original Proposal
  - CMP375 – Alternative (WACM1)
- Each option will require the On-Shore TOs to provide alternative data that is currently supplied to the ESO to enable the calculation of the Expansion Constant and Expansion Factors as used in the Transport Model to calculate TNUoS tariffs.
- These data items will need to be provided to the ESO upon approval of the CUSC Modification, and then on a yearly basis.
- The current view is that the Final Modification Report will be presented to Ofgem mid 2023, with implementation taking place from the April 2024 charging year, if approved.

## Impacts on existing STCPs

- The current STCP14-1 will require amendments to current Expansion Constant requirements with respect to details of the provision of data from the TOs.
- **The request is that the presented STCPs are approved in principle on the basis that once the “In-Flight” CUSC modification has concluded, if approved, the relevant version of STCP14-1 will be implemented alongside the CUSC solution.**



# Draft STC/STCP Modifications

## FSO Transition Mods

Rob Wilson – National Grid  
ESO



**Rob Wilson**

**STC Panel**

**22<sup>nd</sup> Feb 2023**

**Draft STC/STCP changes:  
Housekeeping changes to simplify FSO  
transition**

# Background

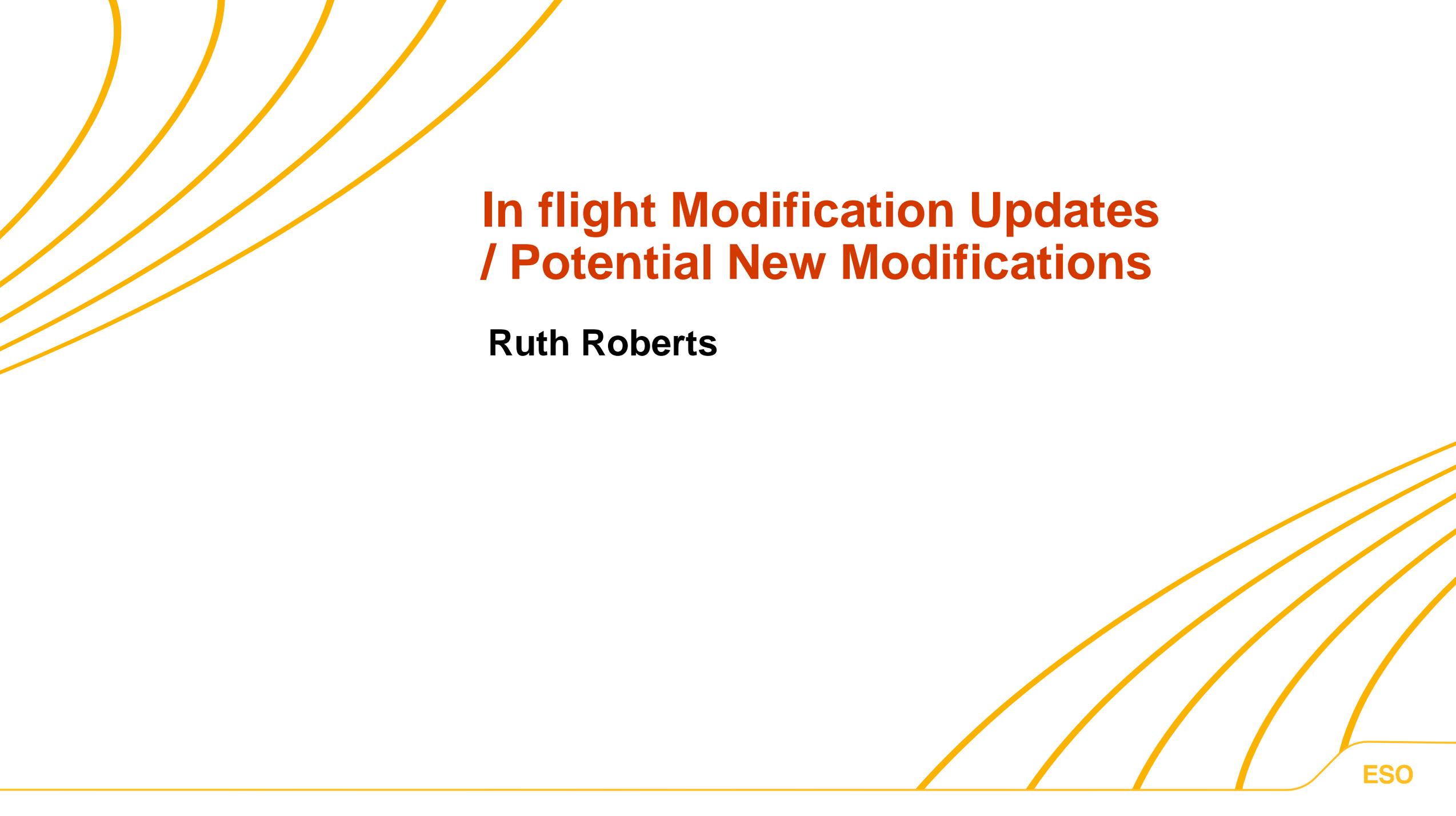
- The Energy Bill that is currently progressing through parliament proposes to establish a Future System Operator (known in the Bill as the Independent System Operator and Planner or ISOP), an independent, first of a kind body, acting as a trusted voice at the heart of the energy sector
- To do this will mean establishing the FSO as a new public body rather than the existing arrangements in which the Electricity System Operator licensed role is fulfilled by National Grid Electricity System Operator Limited (NGESO)
- To facilitate this change will require amendments to all of the industry codes; many of these changes will be institutional in nature (name changes, updates to references etc) but some may be related to new roles for the FSO

# Proposed Modification

- Minor housekeeping changes to the STC and STCPs are proposed now to make the FSO transition simpler to implement when it comes about:
  - Throughout the STC and STCPs, references to NGENSO will be amended to 'The Company'
  - A new/amended definition will be added to the STC to set out that at present 'The Company' means NGENSO
  - The front sheet and revision schedule of each STCP will also be amended to reference 'The Company' and the STC definition
- As the institutional changes to establish the FSO are brought forward, the majority can then be realised simply through a further amendment to the 'The Company' definition to refer to the new name for the FSO when this is determined
- This treatment has long been used in the CUSC and a change to adopt use of 'The Company' was made to the Grid Code at legal separation – but not to the STC which employed a minimum change approach at the time

# Timeline and Governance Route

- Proposed as fast-track self-governance – no parties are impacted by these changes which are purely facilitative
- Presented in draft to Feb panel meeting with samples of legal text
- If panel are agreed, will be raised officially at the March meeting with all legal text sections completed
- Panel are able to make fast track self-governance decisions without further reference or consultation so implementation could follow after the normal appeal window, so in early April



# **In flight Modification Updates / Potential New Modifications**

**Ruth Roberts**



# Reactive Asset Availability

22/02/23

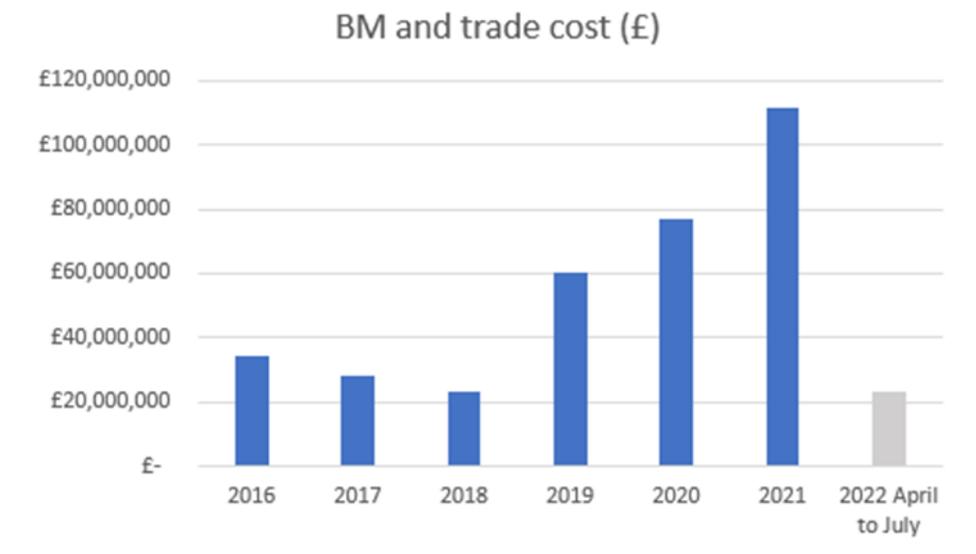
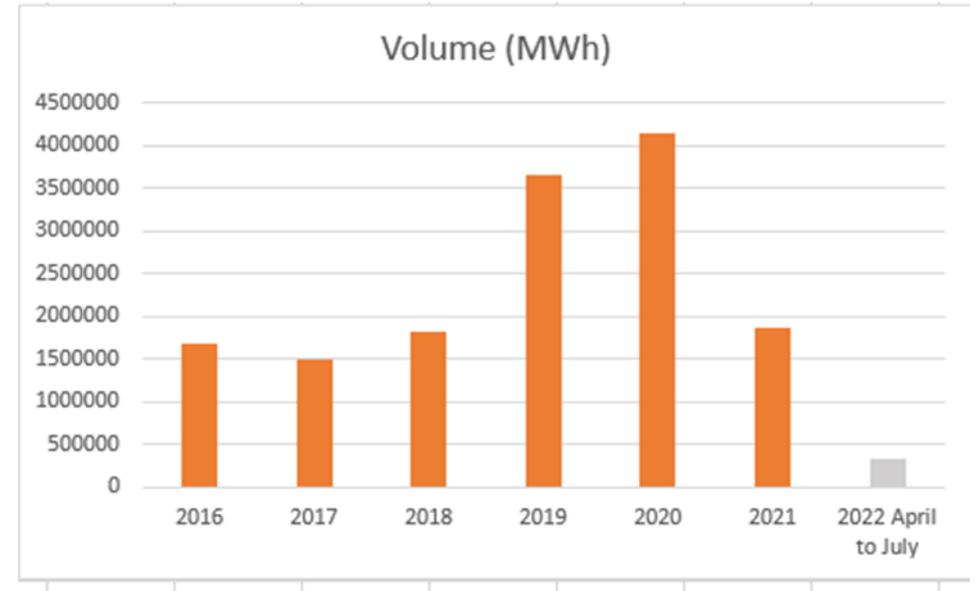
## Proposed change to C17 reporting

- The cost of managing volts on the transmission has increased from £66m in 2016 to £301m in 2021.
- Outages or faulted reactors and SVCs increase the requirement to synchronise generation to access additional MVAR reserve.
- A reduction in reactors and SVC availability also increases the MVAR volume dispatched by generation, the price of MVAR dispatch has increased, being linked to energy prices, from around £2.74/Mvarh in October 2020 to £16.97/Mvarh in October 2022.
- MSCs increase constraint limits when there are high flows, reducing the cost of balancing the system.
- The proposal is to add reactive asset availability to C17 reporting, to maintain an appropriate focus on the availability of transmission assets that have a high impact on the cost of balancing the system.
- The following slides show the historical costs of managing voltage, and the availability stats for reactors, capacitors and SVCs.

## BM and Trade cost and volume (MWh)

Year	Total BM and Trades	Volume (MWh)
2016	£ 34,414,097	1,676,059
2017	£ 28,311,853	1,498,468
2018	£ 23,396,376	1,809,318
2019	£ 60,275,439	3,649,837
2020	£ 77,235,353	4,151,523
2021	£ 111,223,213	1,876,166
2022	£ 22,933,746	3,20,781

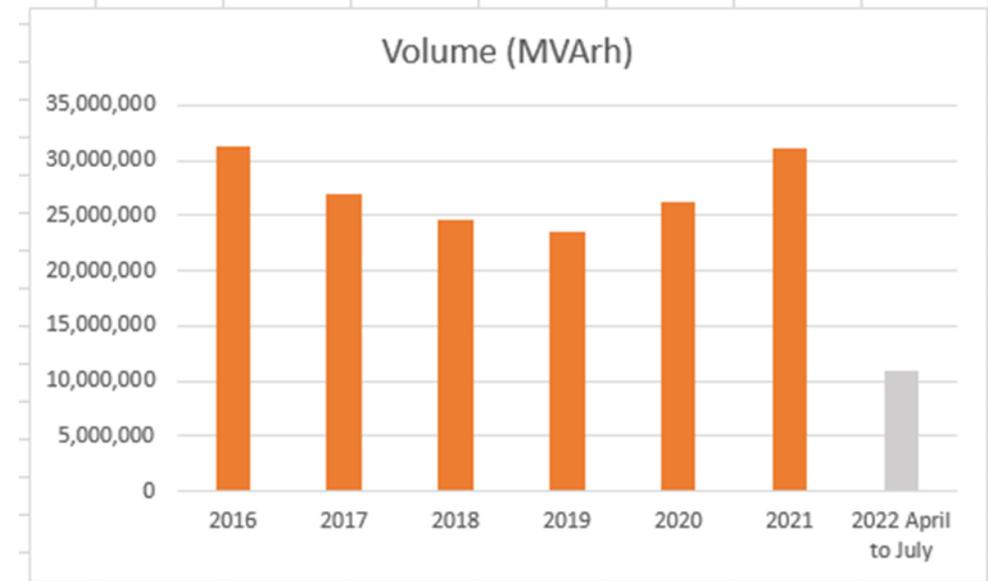
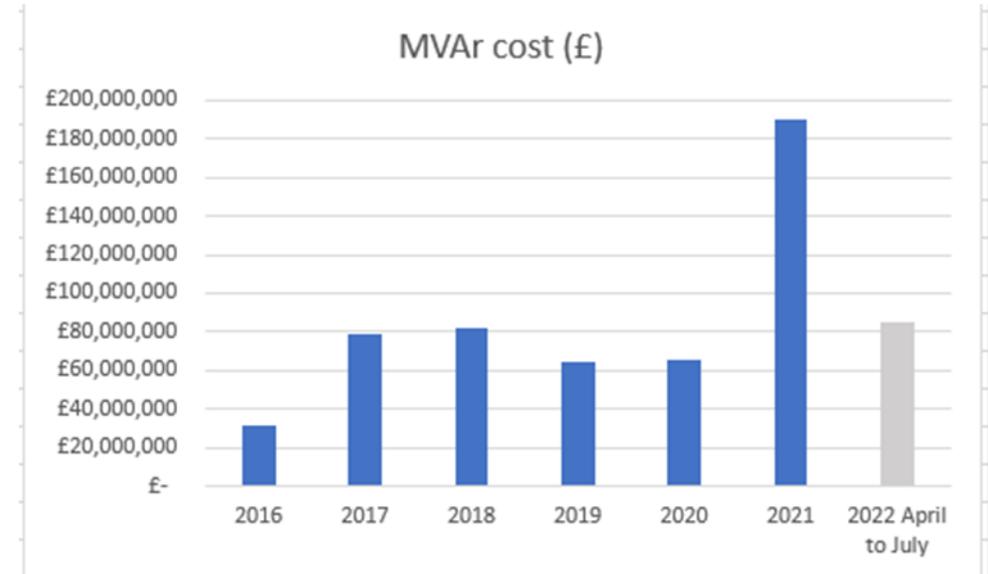
- Table and charts show cost of BM action and trades to bring on generation to manage volts
- In 2019 and 2020 the annual cost and volume of actions has doubled
- The volume of actions decreased in 2021, but continued to increase in cost due to increases energy costs and high BM prices



# Reactive Power total cost and volume (MVArh)

Year	MVAr cost (£)	Volume (MVArh)
2016	£ 31,863,234	31,351,689
2017	£ 78,478,426	26,978,592
2018	£ 81,725,573	24,605,442
2019	£ 64,839,648	23,596,279
2020	£ 65,072,704	26,162,816
2021	£ 190,158,811	31,070,658
2022	£ 85,464,973	10,870,527

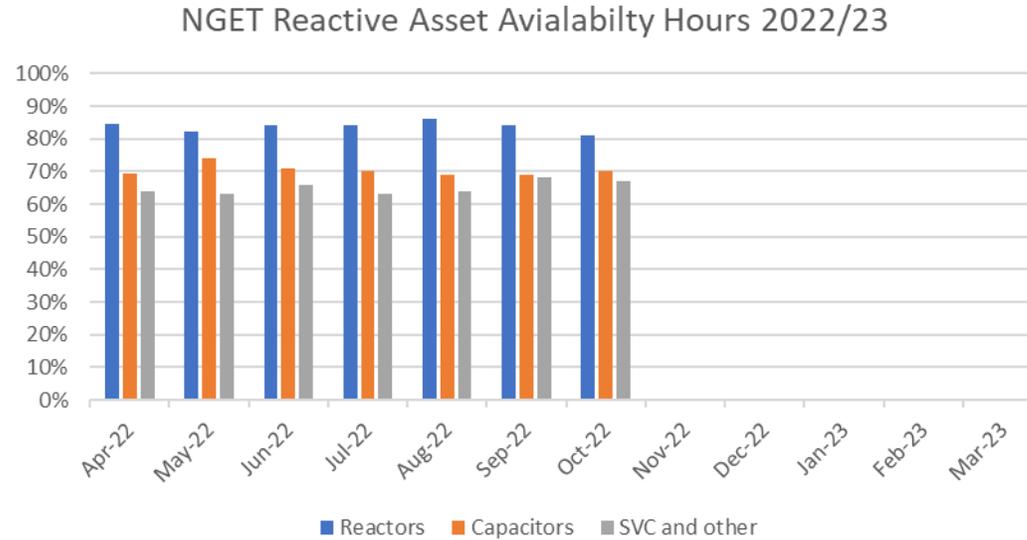
- Large increase in the cost of MVAr payments in 2021
- Obligatory Reactive Power Service (ORPS) prices are linked to energy prices
- October 2022 price was £16.97/Mvarh compared with £2.74/Mvarh in October 2020. Outturn prices: [Obligatory Reactive Power Service \(ORPS\)](#)



# NGET – Shunt Reactors, MSCs and SVCs

The data shows the monthly reactive asset availability for reactors, capacitors and SVCs.

NGET	Reactors	Capacitors	SVC and other
Apr-22	85%	70%	64%
May-22	82%	74%	63%
Jun-22	84%	71%	66%
Jul-22	84%	70%	63%
Aug-22	86%	69%	64%
Sep-22	84%	69%	68%
Oct-22	81%	70%	67%
Nov-22			
Dec-22			
Jan-23			
Feb-23			
Mar-23			



EYTS reactive assets	
Asset Type	Count
Mechanically Switched Capacitor	153
Shunt Reactor	168
SVC	30
<b>Grand Total</b>	<b>351</b>

Reactive asset availability = (total asset hours – total asset outage hours) / total asset hours

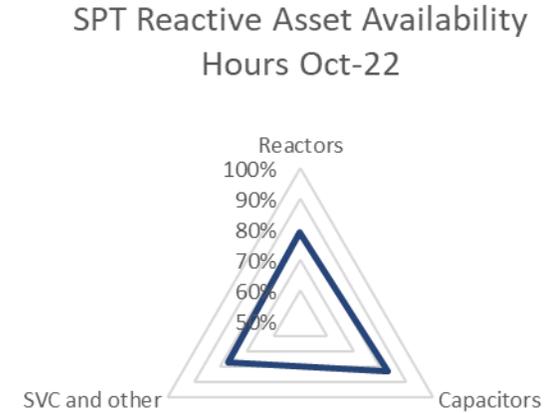
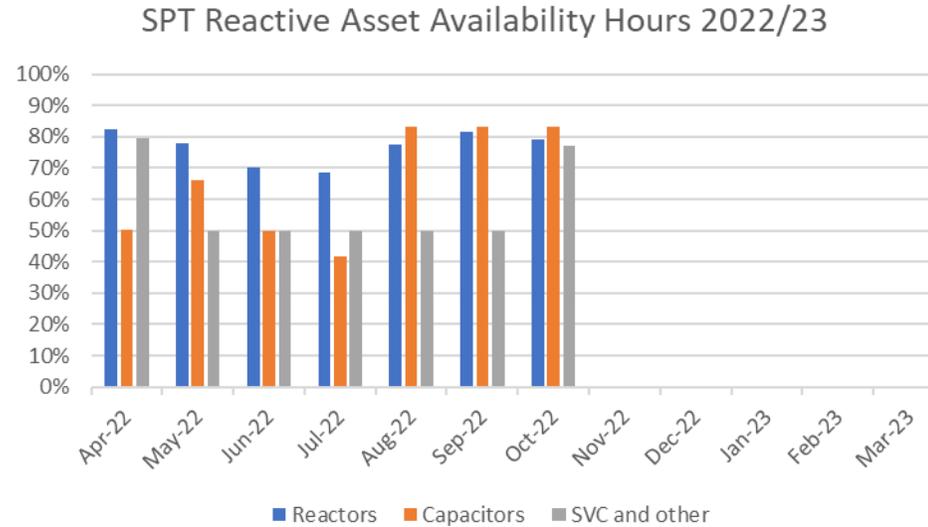
Total asset hours = total number of assets (EYTS) x total hours in the period

Availability figures do not include series reactors or capacitors.

# SPT – Shunt Reactors, MSCs and SVCs

The data shows the monthly reactive asset availability for reactors, capacitors and SVCs.

SPT	Reactors	Capacitors	SVC and other
Apr-22	83%	50%	80%
May-22	78%	66%	50%
Jun-22	70%	50%	50%
Jul-22	69%	42%	50%
Aug-22	77%	83%	50%
Sep-22	82%	83%	50%
Oct-22	79%	83%	77%
Nov-22			
Dec-22			
Jan-23			
Feb-23			
Mar-23			



EYTS reactive assets	
Asset Type	Count
SVC	2
Shunt Reactor	23
Mechanically Switched Capacitor	6
<b>Grand Total</b>	<b>31</b>

Reactive asset availability = (total asset hours – total asset outage hours) / total asset hours

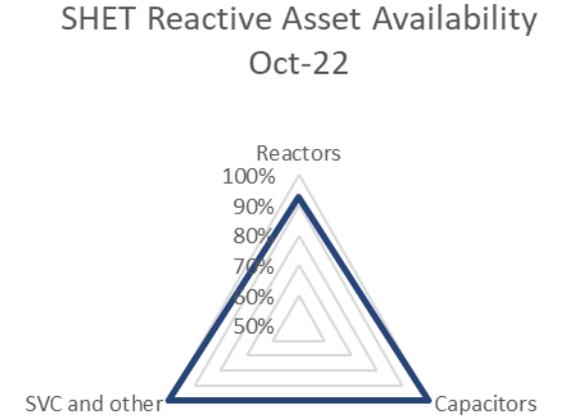
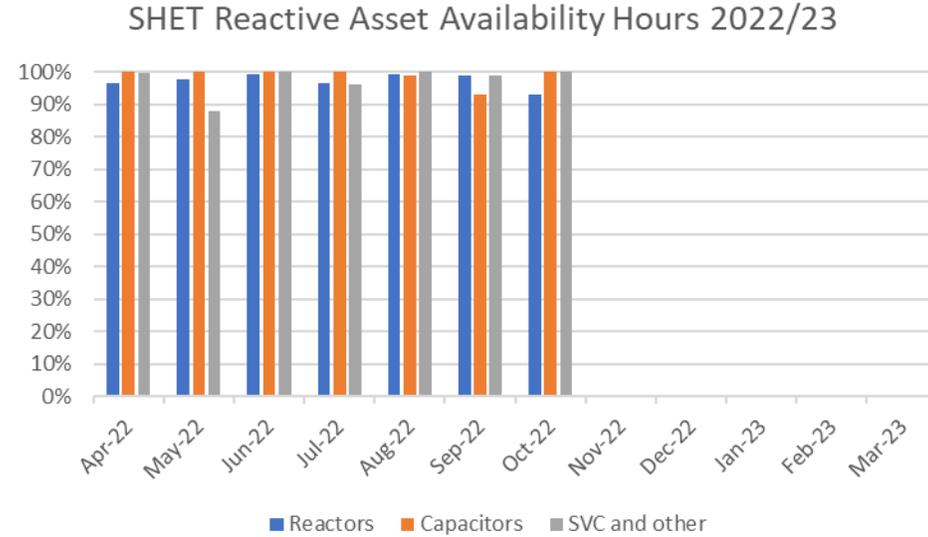
Total asset hours = total number of assets (EYTS) x total hours in the period

Availability figures do not include series reactors or capacitors.

# SHET – Shunt Reactors, MSCs and SVCs

The data shows the monthly reactive asset availability for reactors, capacitors and SVCs.

SHET	Reactors	Capacitors	SVC and other
Apr-22	97%	100%	100%
May-22	98%	100%	88%
Jun-22	99%	100%	100%
Jul-22	97%	100%	96%
Aug-22	99%	99%	100%
Sep-22	99%	93%	99%
Oct-22	93%	100%	100%
Nov-22			
Dec-22			
Jan-23			
Feb-23			
Mar-23			



## EYTS reactive assets

Asset Type	Count
Mechanically Switched Capacitor	4
Shunt Reactor	17
SVC	4
<b>Grand Total</b>	<b>25</b>

Reactive asset availability = (total asset hours – total asset outage hours) / total asset hours

Total asset hours = total number of assets (EYTS) x total hours in the period

Availability figures do not include series reactors or capacitors.





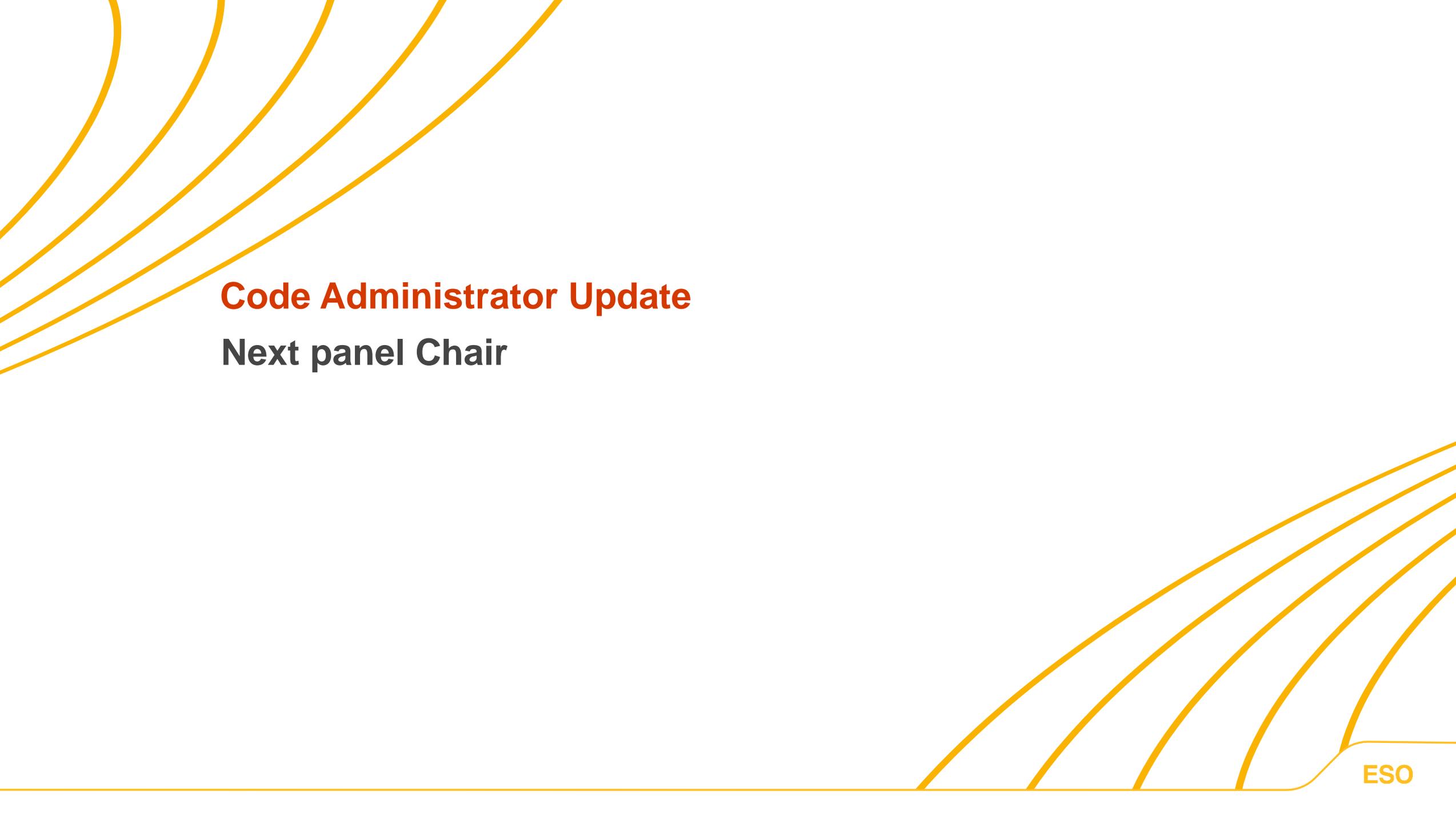
## Workgroup Reports

**None**



## **Draft Final Modification Reports (DFMR)**

**None**



**Code Administrator Update**  
Next panel Chair



**Any Other Business**

**None**

# Next Panel Meeting

**10am on 29 March 2023**

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**Papers Day – 21 March 2023**

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**Modification Proposals to be submitted  
by – 14 March 2023**

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**Close**



**Ruth Roberts**  
STC Panel Chair