Constraint Management Intertrip Service (CMIS)

Formally known as Constraint Management Pathfinder (CMP)

House Keeping

Disclaimer

- The answers provided in the post-webinar FAQ and final tender documents will take precedence over anything said within the Webinar.
- Recorded Webinar

Microsoft Teams

- Microphones muted
- Videos off

Questions/Feedback

- Microsoft Teams Q&A & box.cmp@nationalgrideso.com
  - Send questions throughout Webinar
- General questions - Discussed after each section
  - Outstanding general questions - Industry wide FAQ
- Confidential questions – contact asker directly.

Contact CMIS Team Directly

- saul.shapiro@nationalgrid.com and box.cmp@nationalgrideso.com

Agenda
1. Introduction to CMIS
2. B6 CMIS
3. New Service – EC5 CMIS
4. EC5 ‘Interim’
5. Enabling Offshore Wind in partnership with OFTOs
6. Indicative Timelines

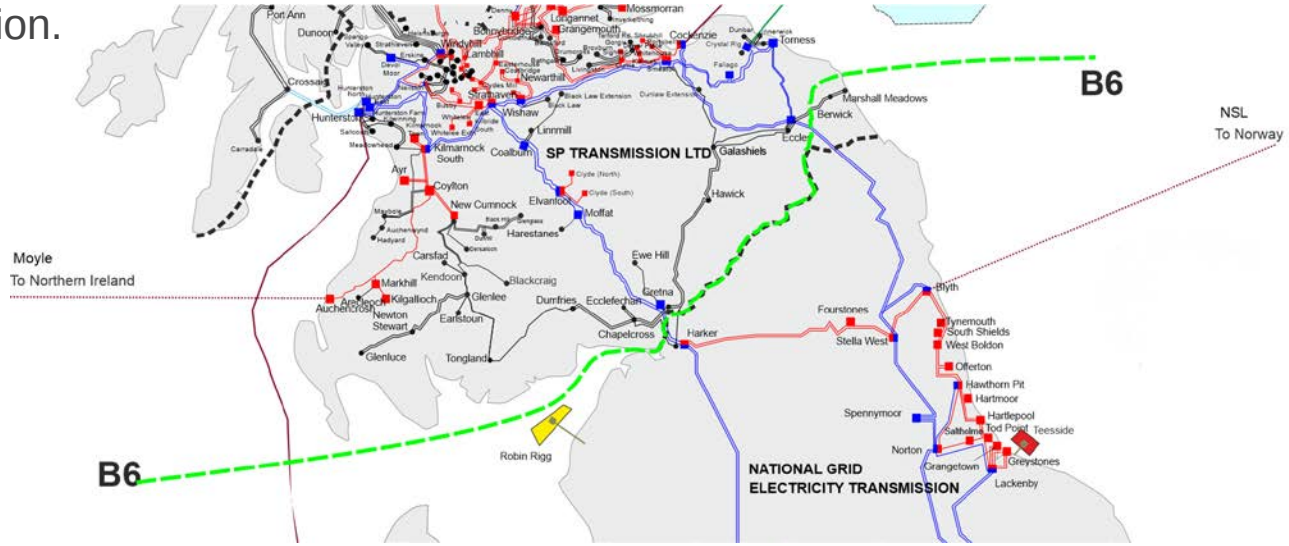
1. Introduction to CMIS

Background

- National Grid Electricity System Operator (ESO) is looking to:
  - reduce network constraint costs
  - create an electricity system that can operate carbon-free.
- Increase of green generators and interconnectors
  - Electricity generation exceeding network transmission limits (creating a constraint).
- The ESO Control Room pre-emptively asks generators to stop or lower their generation.

Service Aim

- Post-fault intertrip service - rapidly disconnects generators from the Transmission System to secure the system if there is a network fault.
- More power transmitted over the constraint pre-fault
- Reduction pre-emptively curtailed green generation



2. B6 CMIS

Background

- Network Options Assessment (NOA) - The Anglo-Scottish Boundary (B6)

- The ESO established B6 CMIS and invited Generators north of the B6 boundary to join.

Previous Tenders

- ESO have already awarded two previous CMIS tenders.

- First went live in April 22.

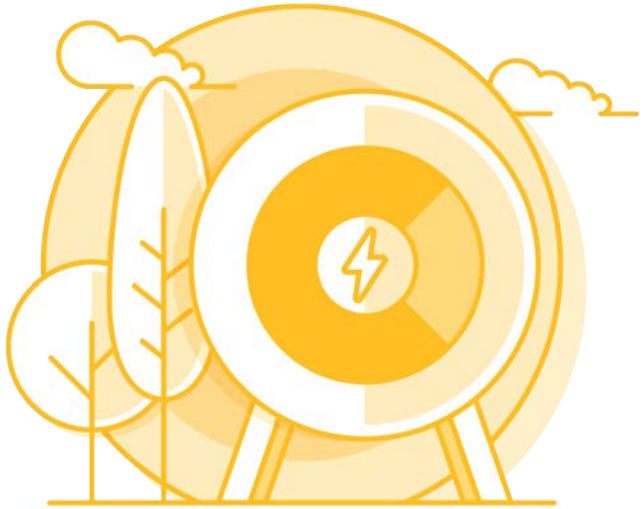
- First 10 months:
  - Average generator armed for 750 hours.
  - Generated 32GWh of extra green energy.

- This saved:
  - The consumer **£80m** in constraint costs in the first ten months alone!
  - And **139,924 tonnes of carbon**, which is the same as 84,802 return flights between London and New York!

2. B6 CMIS

Next Steps

- Currently redesigning the service - process is expected to take 18 months to:
    1. Ensure the best possible value for the consumer by:
        a) Connecting the appropriate number of generators.
        b) Encouraging supplier utilisation of the monthly auctions.
    2. Simplify the bidding process for both service providers and the ESO.
    3. And add in learnings from the live service.
- Long-term solution - will replace the current yearly tender process.
- In-person collaboration workshops with the Industry - End of 23.



B6 CMIS Service Specification Topics Under Review

Topic	Explanation
Ensuring Consumer Value	• Connecting appropriate number of generators • Monthly re-pricing mechanism
Offshore Wind	• Enabling stability timescales (sub 150ms) • Mitigating effect on Offshore Transmission Owners (OFTOs)
Contract	• Structure • Strategy

B6 CMIS Questions?

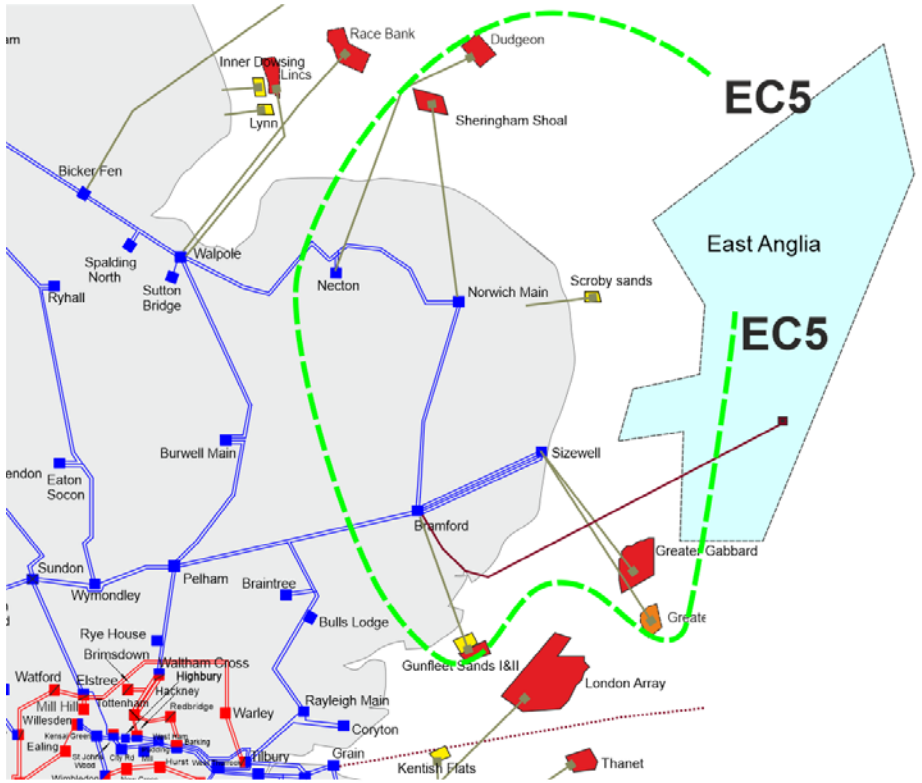
3. New Service – EC5 CMIS

Background

- NOA 2021/22 Refresh:
  - Need in the East Anglia region from 2025 until network reinforcements are complete.
- New EC5 CMIS also aims to:
  - Reduce network congestion costs
  - Increase green generation

Service

- Will be designed to suit EC5 - in consultation with the Industry.
  - Workshop dates at end of presentation
- Ensure the best possible consumer value.
- Contract term is expected to begin in 2025:
  - NGET East Anglia Operational Tripping Scheme (EAOTS) upgrades and generator connection works required before then.



EC5 CMIS Service Specification Topics Under Review

Topic	Explanation
Tripping	• Control Room instructions • Pricing structure: de-load v trip
New Generator Connections	• Feasibility studies • Requirements • Costs to connect
Ensuring Consumer Value	• Connecting appropriate number of generators • Monthly re-pricing mechanism
Offshore Wind	• Enabling stability timescales (sub 150ms) • Mitigating effect on Offshore Transmission Owners (OFTOs)
Contract	• Structure • Strategy

Questions for EC5 Market

Background

A generator joining the service that does not have an intertrip installed will need to complete some connection works. This will include:

- The installation of communication links between a generator owned circuit breaker and the TO EAOTS terminal at the transmission substation.
- An intertrip facility to respond to the EAOTS intertrip signals.

Questions:

1. A feasibility study may be required as part of the tender bid to understand the connection costs. What work/costs by the bidder would be required to complete the feasibility study?
2. Can you provide a high-level estimate of the cost to complete the connection works, without a feasibility study?

Ask:

- Please send questions or comments now
- or email response to saul.shapiro@nationalgrid.com and box.cmp@nationalgrideso.com

4. EC5 CMIS ‘Interim’

- The ESO has identified that there is a consumer value opportunity in beginning the EC5 service before 2025 (i.e. set up ‘interim’ contracts).

- Service Specification is still being designed so the ESO have decided to limit the parties that will be able to join the ‘Interim’ service to:

Requirement	Reason
Generators that have already been connected to the NGET EAOTS.	It can take up to two years to complete: ❑ The NGET EAOTS upgrades ❑ The generators intertrip connections

- This does not stop other EC5 generators from joining the full market EC5 CMIS tender in any way.

- ‘Interim’ contract terms and conditions - specific to ‘Interim’ service.

- All relevant parties with EAOTS connections have been contacted. If not, please email box.cmp@nationalgrideso.com.

4. EC5 CMIS ‘Interim’ Bidding Process & Indicative Timelines

Stage	Start	Finish
Interim Consultation*	06-Mar-23	09:00 3-Apr-23
Tender Launch	Apr-23	May-23
Interim Contracts Signed	Jul-23	Aug-23

*Consultation is open to any parties that wish to provide feedback on the EC5 CMIS ‘Interim’

Questions for EC5 Interim Market

Background:

- Generators that are already connected to the East Anglian Operational Tripping Scheme (EAOTS).
- Same intertripping commands as their existing Operational Tripping Scheme arrangement.
- Majority - de-load within 10 seconds (and then trip after 10 seconds).
    - Some - only tripping instruction.
- Two forms of service payment: an Arming Fee (£/MWh) and a Tripping Fee (flat Tripping fee).

Question:

1. Should there be a single or combined Tripping fee for instructions to de-load and/or trip a generator? Please explain the rationale for your answer.

Ask:

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EC5 CMIS Questions?

5. Enabling Offshore Wind in partnership with OFTOs

Background

- Offshore windfarms in both EC5 and B6
- Removed offshore windfarms from previous tenders
  - Complexities in Intertrip connection process
  - Investigating interaction with OFTO

Aim

- Enable offshore windfarms
- Understand & mitigate impact on OFTOs

5. Enabling Offshore Wind in partnership with OFTOs

Problem

- Requirement to trip generators within / close to 150ms to account for Stability trips.
- ENCC - ideally trip the circuit breaker at the Transmission Interface Point (TIP).

#	Issue	Suggested Solution Options
1.	Tripping at the TIP also trips the OFTO assets	a) Trip at the Offshore Grid Entry Point for stability, generator for thermal • Achieve 150ms? • Meet dual redundancy requirement? • How many connections would be needed?
2.	Potential to adversely affect the OFTO commercially: • Licence condition for Availability. • Difficulty of re-energising.	a) Update the System operator Transmission owner Code (STC) and Grid Code
3.	Offshore Windfarms without appointed OFTO.	a) Bidding generators install duplicated communication routes between the TIP and Offshore Grid Entry Point

Ask:

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- or email response to saul.shapiro@nationalgrid.com and box.cmp@nationalgrideso.com

Offshore Wind Questions?

6. Indicative Timelines

Project	Stage	Start	Finish
Interim EC5	Interim Consultation	06-Mar-23	09:00 3-Apr-23
	Tender Launch	Apr-23	May-23
	Interim Contracts Signed	Jul-23	Aug-23
EC5 Tender	Industry Workshops	May 23	
	Tender Process Start	FYQ2-23/24	
B6 Tender	Industry Workshops	Sep-23	
	Tender Process Start	FYQ3–23/24	

Any Final Questions and Comments?

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