The National HVDC Centre

Operators Forum- welcome and Overview of Event.

12/13 June 2024

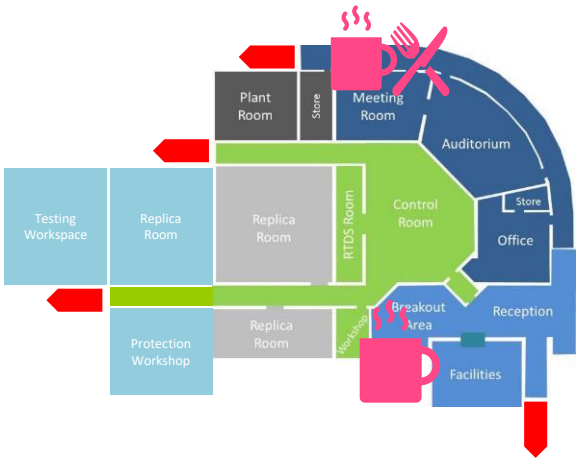
Ben Marshall, Technology Manager

The National HVDC Centre

Content

1) Welcome & Housekeeping (9.30am-9.32am)
2) Safety moment (9.32am-9.35am)
3) Recap- last Operators Forum (9.35am- 9.37am)
4) Major developments since last Operators Forum (9.37-9.35am)
5) Key themes for this Operators Forum (9.35- 9.50am)
6) Any Questions?

Housekeeping- Site Safety



Fire Safety

- **Exits:** Familiarise yourself with the nearest exits.
- **Assembly Point:** The fire assembly point is on the pavement outside the main gate.
- **Call points, extinguishers & blanket**.

Note: Weekly Fire Alarm Test is every Thursday at 9:00am

Caution: Hot Water

Please take care with our:

- Boiling water tap; and
- Kitchen sink tap is also very hot.

First Aid

- There are first-aid kits, burns kits and a defibrillator on site.
- Simon Marshall, Colin & Fabian, are trained first-aiders, please contact them for assistance.

Safety Rules

- **Reverse Park**
- **Sign-In & Out**
- **Assess Risks**
- **Report All Incidents/Hazards**
- **Accept Challenges**

Housekeeping- Operators Forum meeting etiquette

There's a lot of people here today, so-

- Please keep mobile phones on silent and feel free to pop in and out of the Auditorium as you need to, as discreetly as you can.

- Please be courteous to speakers and questions- don't shout over/ interject, we have allocated time for Q&A and panel interactions across the event.

- Please be conscious of keeping to time when presenting and similarly during coffee breaks.

- Please use flipcharts/ room white board to record any further questions, observation/discussion points, expectations- we will come back to these across the event where we can.

Safety Moment- Forsmark Nuclear Plant

13th May 2024- Transmission fault near Forsmark nuclear power station, which tripped unit1- failed to "ride-through", resulting in a 1GW loss. Unit 2 was on maintenance at the time; otherwise it would have seen the same electrical disturbance- in that case the total loss could have been around 2GW instead, exceeding Nordic Grid max loss.

Nordic grid, like our own is becoming increasingly converter dominated. Increasingly more EMT analysis in planning and supporting operation- e.g. see link to Fingrid's recent experience and approach Webinar: Measures to Address Stability Issues in Fingrid - ESIG

Why is this relevant?

- Forsmark was built in the early 1980s when a convertor dominated system was not envisaged.
- Legacy generation relies on (don't just provide!) system strength, to ride-through an event.
- This is why current injections into a fault are needed- to ensure the general stability of a network is maintained.
- HVDC are the largest single converters on the future network. Their performance now and in the future is critical.

Recap- last Ops Forum- the “how”.

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How do we get to Net Zero?






1. **How to design HVDC for Net-Zero**
   - National Ambition, HND,TSO& Developer, International work
2. **How to provide enhanced Network support**
   - ESO initiatives, Networks, integration, new services
3. **How to specify and build Multi-terminal, Multi-vendor networks**
   - “Safe to fail”, sequenced activity, promoting standardisation
4. **How Vendors are preparing for this-**
   - Project Aquila, InterOPERA, READY4DC, GTSOC & virtual replicas
5. **How to deliver at Pace**
   - Standardise, modular, multi-vendor, supply chain, long term certainty.
6. **How to develop Skills**
   - Industrial qualifications, Academic courses, industrial Doctorates, early years skills.

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So “how” has it been going?

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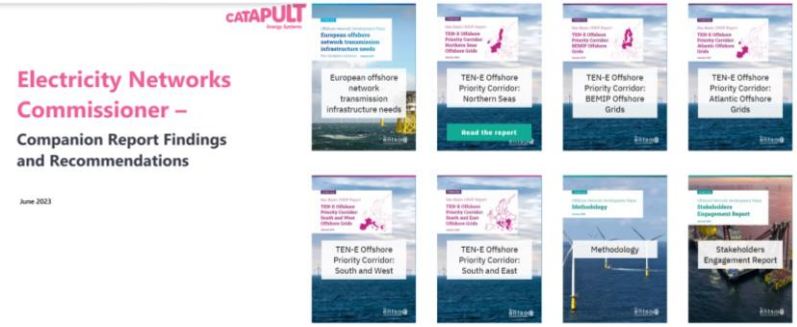
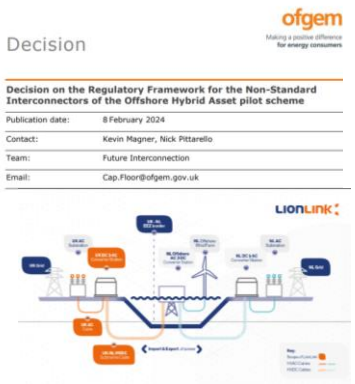
How to design for Net Zero?





How to provide enhanced network support?

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So “how” has it been going?

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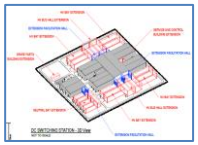
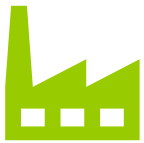
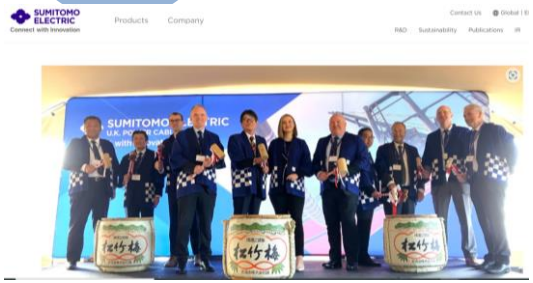


How to Specify and build multi-terminal?





How vendors are preparing

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So “how” has it been going?

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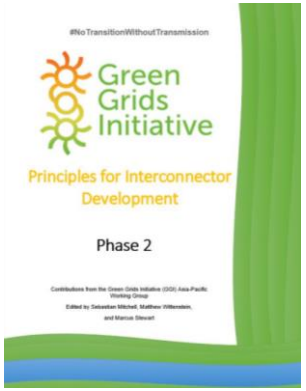
How to deliver at pace



How to develop Skills.

idcore
Industrial Doctoral Centre for Offshore Renewable Energy

UK Research and Innovation

Industrial CASE – EPSRC

ENERGY & UTILITY SKILLS

etp

ADOreD
Accelerating the Deployment of Offshore wind using DC technology

Imperial College London · WARWICK · University of Plymouth · University of St Andrews

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Today's Operators Forum- The "What".

What's everyone else doing? What's similar/ different & why?

What are we delivering?

What does interoperability look like?

What makes scale and pace deliverable?

Next-

HVDC in GB

The National HVDC Centre *part of* Scottish & Southern Electricity Networks *together with* nationalgrid, SP ENERGY NETWORKS

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Thanks for listening.

Any questions, please?

- For further information, please visit **www.hvdccentre.com** ; OR email: **info@hvdccentre.com**
- **https://www.hvdccentre.com/technical-films/**

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