



## Welcome to our Autumn edition of the HVDC Centre Newsletter.

As we expand our capabilities, with RTDS Technologies' newest simulator, and expand our team; we share some project outcomes, and details of training and webinars.

### Specialist Services

In 1776, just down the road from the HVDC Centre, Adam Smith gave a famous example in "The Wealth of Nations" that ten specialised workers could produce 48,000 pins per day, whereas without specialisation a single worker would struggle to even produce 1 pin a day. Over the past few months, we have been looking to learn from our famous countryman in how we work and specialise our services.

We have developed a list of the 15 specialist services that we can offer to all GB HVDC projects: from technical advice, to training, to replica hosting. This allows us to focus on the areas that we have built up expertise and can offer high quality support; details can be found on our website: <https://www.hvdccentre.com/our-centre/our-services/>

We can provide these services to all GB-connecting HVDC projects. If you are interested in learning more, please contact us at: [info@hvdccentre.com](mailto:info@hvdccentre.com)

*Ben Gomersall*



### NovaCor 2.0

The Centre is expanding its capabilities and has just received RTDS Technologies' new NovaCor 2.0 simulator.

NovaCor 2.0 is the latest generation of real-time power system simulation hardware, based on a powerful multi-core processor, it enables enhanced simulation capabilities, allowing us to simulate larger and more complex networks.

The hardware enables 20% more power system nodes in general, and 25% more nodes in the power electronics simulation environment.

A new non-real-time simulation mode allows the NovaCor 2.0 to simulate significantly larger networks than before by switching to the non-real-time environment. This mode accommodates 10 times the power system nodes than would be possible in real time.

Non-real-time simulation with the RTDS will enable highly efficient large-scale EMT simulation.

*Simon Marshall &  
Kati Sidwall (RTDS Technologies)*

To find out more, please contact us to discuss or to arrange a visit:

**01236 687240 | [info@hvdccentre.com](mailto:info@hvdccentre.com) | [hvdccentre.com](http://hvdccentre.com)**

## HVDC Control Interactions

The Centre is investigating the possible future control interactions of multiple GB HVDC links connected in close proximity. Control interactions are becoming more prominent on the GB network with the increasing penetration of converter connected generation. Therefore, careful analysis to determine the cause and effect of these problems is key.

The Centre is at the forefront of this type of analysis in GB with the studies involving state-of-the-art small-signal techniques to screen system conditions that pose the most risk.

Recent investment in new computing hardware has allowed us to test a high number of cases simultaneously providing significantly more information over shorter timescales than was previously obtainable. These fast-screening techniques will allow us to apply more detailed dynamic testing to cases that are deemed of most risk with the aim of identifying possible causes of oscillations within the power system.

*Callum Henderson*

## Upcoming Training

We are planning to run a one-day training course on HVDC and Project Delivery on Tuesday 21 November (date TBC).

The course will cover:

- Introduction to HVDC technologies;
- Overview of HVDC control and protection;
- Typical HVDC project lifecycle and delivery challenges;
- Simulation and testing processes for HVDC projects;
- De-risking HVDC Project Delivery.

The training will be delivered in-person at The National HVDC Centre using a combination of presentations, technical demos, and workshop activities.

Please email [info@hvdccentre.com](mailto:info@hvdccentre.com) for more details or to register your interest.

*Colin Foote*

## Webinar: Network-DC

### The Why and How of DC Circuit Breakers

Join us at our next webinar; where we will present the technical outcomes from the Network-DC project.

**Date:** 25 Oct 2023

**Time:** 14:00 to 15:00 UK Time

**Register:** <https://forms.office.com/e/FiBnWJn6qD>

For more information, click [here](#)

To find out more, please contact us to discuss or to arrange a visit:

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## Welcome

We are delighted to welcome new engineers to the HVDC Centre team:



**Callum Henderson** recently joined the team as a Simulation Engineer, he comes from the University of Strathclyde where he recently completed his PhD researching interactions of grid-forming converters for wind farm applications and offers a range of experience relating to the stability and performance of converter dominated systems.

**Gowtham Tammana** graduated with MSc in Electrical Power Engineering from University of Southampton. He has previous work experience in substations as a commissioning engineer. At the Centre, he will be working on the INCENTIVE project supporting our engineers during his first six-month placement of the Graduate Development Programme.



**Arpan Jana** completed his MSc in Electrical Power Systems Engineering from the University of Manchester and joined SSEN Transmission as a Graduate HVDC Engineer. During his first 6-month placement, Arpan will be supporting our simulation engineers on the Caithness-Moray-Shetland (CMS) replicas while developing his technical skills on real-time simulation tools such as RSCAD and RTDS.



## NPCC Training

In collaboration with Imperial College, the Centre delivered online technical training to participants from the National Power Control Centre (NPCC), National Transmission & Despatch Company (NTDC), Pakistan.

The training focused on dealing with operational grid challenges.

*Isioma Okoh*