Newsletter

The National HVDC Centre

Issue 12: March 2018

Recruitment

We are excited to be expanding our team and are soon to start recruiting for two people to join us.

A new role of **Lead Simulation Engineer** will lead our team of Simulation Engineers; managing the delivery of our technical programme.

We are also recruiting for an additional **Simulation Engineer**, to undertake real-time simulation studies on HVDC schemes in GB.

If you are interested in joining the team, please contact us for more information, or apply directly on: www.ssejobs.co.uk.

We expect the job adverts to go live in a few weeks.

Contact Us

If you would like more information or wish to unsubscribe, please contact us at: info@hvdccentre.com

Welcome to the 12th edition of The National HVDC Centre's newsletter, our first of 2018. Here, in our part of Scotland, spring is hopefully around the corner and at the Centre we are busy preparing for our approaching 1st birthday and for what is set to be a busy 2018.

Business Development at The National HVDC Centre

As the newly appointed Business Development Manager (funded through Scottish Enterprise), firstly I would like to say hello, and expand a little on what my role entails.

It is my responsibility to deliver the Centre's development through constructive collaboration, engagement and strategic marketing for HVDC projects in the GB system.

I would like to take this opportunity to highlight that we are your HVDC Centre, and key to this is excellent stakeholder engagement and collaboration. As part of this ongoing commitment to collaboration, with industry and academia, we aim to develop a formalised engagement plan this year. We will be looking for your views on how we should be planning our strategy, and importantly, what you want us to undertake. If you are interested in finding out more, please keep check our website regularly, or email me directly, ruth.apps2@sse.com

Ruth Apps

Replica Panels

"Replica panels" for any HVDC project are duplicates of the physical control system for that scheme. Although small compared to the capital cost of a large HVDC project, buying replica controls represents a significant investment, so why do it?

HVDC system owners across the world routinely purchase replicas of the control systems for their HVDC schemes. In a similar way to a flight deck simulator, replica HVDC controls offer the ability to simulate HVDC performance in real time under network scenarios and conditions that are not practical to set-up on the real transmission system.

Real-time simulation with replicas offers benefits prior to commissioning by exposing and correcting network integration and compliance issues before they cause costly project delays. Once an HVDC project is in service replicas allow for upgrades and performance against evolving network conditions to be proven off-line, provide opportunities for operator training and can facilitate fault investigation to allow a return to service; all to minimise potential down-time of HVDC installations.

Paul Neilson

HVDC Operators' Forum 2018

We are pleased to announce the 3rd annual "HVDC Operators' Forum" will take place on Thursday 21st and Friday 22nd June 2018, at the HVDC Centre.

We are planning a mid-morning start on the Thursday, with presentations from as many HVDC projects as possible during the day and a BBQ (& potentially a round of Golf) in the evening. The Friday will have some more project discussions, presentations from relevant academic projects together with a tour of the PNDC (& aiming for an early finish to allow for travel).

This event is unique in providing a forum for those developing and operating HVDC schemes connecting to the GB Network (including: TOs, Interconnectors and OFTOs) to share experience, knowledge and learnings.

We aim to invite all such projects/organisations to attend and present, but please contact us directly if you would like to attend, Simon.Marshall@sse.com

Simon Marshall

The National HVDC Centre

Events

11 April: Promotion WP9 Event, Yash Audichya and Tarun Sharma will be continuing the Centre's work on PROMOTioN, with a meeting in Belgium.

17 April: The Power Electronics Conference (IET) in Liverpool, Dumi Simfukwe will be attending.

26 April: The Centre's 1st Birthday! Join us for a special day.

May: PROMOTioN WP15 Event in Brussels, Yash Audichya will be attending.

2-3 May: All Energy Conference, Glasgow. Various team members will attend.

14 May: SuperGrid Institute TSO Event. Yash Audichya, Dumi Simfukwe and Tarun Sharma will be attending from the Centre.

4 June – RTE Event: Future challenges with high penetration of HVDC links, FACTS and wind farm systems in HV network .

June: PROMOTioN Project, Plenary Meeting, Amsterdam. Yash Audichya will attend from the Centre.

21-22 June - HVDC Operator's Forum here at the HVDC Centre. Please see article in this newsletter for more details.

28 June – ACDC Conference, Chengdu, China. Professor Lie Xu from Strathclyde will present research done with the Centre.

Factory System Testing *Stage 3*

Between the 29th of January and 9th February 2018, members of the team visited ABB in Ludvika to witness the testing of FST3 (Factory System Testing, Stage 3) of the Caithness-Moray Replica Control Panels.

The Replica Control Cubicles were tested against a pre-agreed test plan using a pre-agreed RTDS model. This was a sub set of the main project FST3 tests undertaken with a view to checking that the Replica Control Panels are a true replica of the main project panels.

The basic functionality of the controllers is checked in earlier phases on the testing which means that the final stage can ensure that the controllers meet the requirements set out in the specification. This includes testing fault ride through and high level additional automatic power order controllers.

This was a collaborative process undertaken with ABB and a good chance to get do something hands on with the replicas. Following a final sign off process for this testing we will be all set to receive and install our replicas in May.

Ian Cowan

Collaborative Research with Strathclyde University

The National HVDC Centre commissioned Strathclyde University to develop Modular Multilevel HVDC converter models to be used in both offline and real-time simulations.

Unlike the models available from HVDC vendors and others, these models will be open and accessible allowing various control studies.

The project is in two phases. The first phase is to develop offline models in PSCAD, which has been completed. A systematic development of switching function, averaged and Thevenin equivalent MMC models was undertaken. It was shown through simulation of steady state, AC and DC network faults that the developed switching function and averaged models can be produce similar results to the full-scale PSCAD MMC model but with increased simulation speed.

The next phase of the project, which is underway, will involve translating these models into RSCAD for use in real-time simulations. Part of this work will be presented at the forthcoming The AC and DC Power Transmission (ACDC) Conference in June 2018. A link to the pre-print of the paper will be on our website soon.

Dumi Simfukwe

Finally….It's Our First Birthday and We're Celebrating!

On 26th April the HVDC Centre will be 365 days old, which of course means a birthday party!

We warmly invite you to help us celebrate by joining us for lunch and a tour of our facility, on Thursday 26th April between 12pm and 3pm.

There will be a range of demonstrations, presentations and interactive activities so you can get some hands-on experience of what we do.

Please RSVP to info@hvdccentre.com, by Thursday 19th April .

Simon Marshall