

From: **Manon Davies, Cardiff University** <DaviesM75@cardiff.ac.uk>
Date: Mon, 29 Apr 2019 15:15
Subject: InnoDC's busy Belgians



Our non-stop Belgian team:



Nathalia Campos and Stephen Hardy in Brussels

[CG](#) researcher, [Stephen](#), and [Elia](#) researcher, [Nathalia](#), attended the [Sharing Inspiration 2019 conference](#) at the European Committee of the Regions, which promotes science in education. They discussed possible wind-energy workshop collaboration with [European Schoolnet](#) Project Manager, Adina Nistor (centre), met EU policy-makers and listened to impressive speakers, including the first German female astronaut, Dr Insa Thiele-Eich!



InnoDC at ACDC 2019

InnoDC supervisors and visiting scientists delivered [tutorials](#) and lectures at the [15th IET international conference on AC and DC Power Transmission](#). These included [Dr Jef Beerten](#) of KU Leuven's tutorial on Interactions Between AC & DC Grids, and [KU Leuven](#) sessions on Protection and Pole Voltage Re-balancing, and Hybrid AC/DC Optimal Power Flow.

- Large scale integration of HVDC into existing system and planned development of HVDC grids may be utilized to improve operation owing to characteristic flexibility of HVDC.
- Preventive-corrective security provides opportunity for trade-off between costs and risks. Thus, a 2-stage preventive-corrective Security Constrained Optimal Power Flow (SCOPF) model is implemented for AC/DC grids.

Proposed Method

- Two-stage process
- Both preventive measures as well as fast corrective measures (after system contingency) utilized to remove the violated limits
- Aim to minimize the total risk which is sum of preventive redispatch costs and the corrective risk, equated to the probability of a contingency times the corrective redispatch costs

Implementation

$$p^{min} \text{ cost}^1 \text{ prob} \text{ (cont-1)}$$

$$p^{min} \text{ cost}^2 \text{ prob} \text{ (cont-2)}$$

$$p^{min} \text{ cost}^N \text{ prob} \text{ (cont-N)}$$

$$\sum_{i=1}^N p^{min} \text{ cost}^i \text{ prob} \text{ (cont-} i \text{)}$$

Results

Variation in total risk, first stage cost and second stage risk based on relative contingency probability
 Variation in total risk, first stage cost and second stage risk based on relative contingency probability
 With increasing contingency cost coefficients, preventive dispatch is more favorable and thus higher preventive

Vaishally Bhardwaj in Cambridge

KU Leuven researcher, [Vaishally](#), presented a poster at the EPSRC Supergen Energy Networks Hub [Risk Day 2019](#) at the University of Cambridge. The event focused on research in power systems risk and uncertainty analysis. This was the perfect environment to meet experts and discuss her project Reliable Operation of Hybrid AC/DC Power Systems in Different Time Frames Under Uncertainty. If you are interested in her topic, read the [poster](#).



InnoDC has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No 765585.

You can [unsubscribe from this list](#).

