2023 EPSRC Supergen Energy Networks Hub Risk and Resilience Day Programme

09:30 – 09:35   Welcome and kick-off

09:35 – 10:20   Keynote 1 | Dr Ian Llewellyn (Department of Business Energy and Industrial Strategy, BEIS)

Modelling and controlling the risks in future energy systems

10:20 – 11:05   Oral session 1 | Risks in distribution systems

O1.1   A robust mixed-integer convex model for optimal scheduling of integrated energy storage – soft open point devices

Ilias Sarantakos, Matt Deakin (Newcastle University),
Phil Taylor (University of Bristol)

O1.2   Decomposition and forecasting of distribution locational marginal prices

Arman Sarjou, Azad Deihim, Eduardo Alonso,
Dimitra Apostolopoulou (City, University of London)

O1.3   A novel formulation of LV distribution network equivalents for reliability analysis

Mike Brian Ndawula, Chenghong Gu (University of Bath),
Sasa Z. Djokic University of Edinburgh),
Ignacio Hernando-Gil (ESTIA Institute of Technology, France)

11:05 – 11:25   Poster introduction session (speed round)

P1   Probabilistic assessment of heat electrification impacts on gas and electricity networks

Ali Ehsan, Robin Preece (The University of Manchester)

P2   Provision of energy and frequency containment services in unit commitment

Carlos Matamala, Luis Badesa, Goran Strbac
(Imperial College London)

P3   Flexibility needs assessment for distribution networks

Md Umar Hashmi, Arpan Koirala, Hakan Ergun, Dirk Van Hertem
(KU Leuven, Belgium)

P4   Long-term economic equilibrium for distributed energy resources deployment

Miguel Sanchez-Lopez (The University of Manchester, Universidad de Chile), Robin Preece, Eduardo Alejandro Martinez Cesena (The University of Manchester), Rodrigo Moreno (Universidad de Chile, Imperial College London)

P5   Cybersecurity of battery energy storage

Nina Kharlamova (Technical University of Denmark)

P6   Joint modelling of regional electricity net-demand in Great Britain

Vincenzo Gioia (University of Udine, Italy), Matteo Fasiolo (University of Bristol), Jethro Browell (University of Glasgow), Ruggero Bellio (University of Udine, Italy)

P7   Towards resilient communities: Strengthening infrastructure for critical service provision under severe weather conditions

Laiz Souto, Philip C. Taylor, Maria Pregnolato
(University of Bristol)

P8   Robust optimal power flow for multi-area AC/DC grids under multi-purpose interconnector setup

Oscar Damanik, Hakan Ergun, Dirk Van Hertem
(KU Leuven, Belgium)

P9	Heat impacts on power and transport infrastructure resilience
	Zixuan Jia, Daniel L. Donaldson, Emma Ferranti (University of Birmingham)

P10	Assessing the impact of energy shocks on consumer tariff choice and distribution network planning
	Matthew Deakin (Newcastle University), Cheng Wen (Leeds University), Mohammad S. Rafaq (Loughborough University), Paraskevi Vatougiou (Heriot-Watt University), Shandelle Steadman (Cranfield University)

P11	Split-based sampling for Machine learning based power system security assessment
	Al-Amin B Bugaje (Imperial College London), Jochen L Cremer (Delft University of Technology, Netherlands), Goran Strbac (Imperial College London)

11:25 – 12:00	Poster session and refreshments

12:00 – 12:45	Oral session 2	Models for risk assessment and mitigation

O2.1	Multilevel Monte Carlo with surrogate models for resource adequacy assessment
	Ensieh Sharifnia, Simon Tindemans (Delft University of Technology, Netherlands)

O2.2	Reliable design and operation of offshore energy hubs: the Belgian first-of-its-kind energy hub
	Giacomo Bastianel, Hakan Ergun, Dirk Van Hertem (KU Leuven, Belgium)

O2.3	Mapping the potential contribution of offshore wind-derived hydrogen electrolysis to energy system resilience
	Graeme Hawker, Emily Chapman (University of Strathclyde), Katriona Edlmann (University of Edinburgh)

12:45 – 13:45	Lunch and posters

13:45 – 14:30   Keynote 2 | Dr Anupama Sen (University of Oxford)

The new energy state

14:30 – 15:15   Oral session 3 | Power system resilience

O3.1   Prediction of cascading failures and simultaneous learning of functional connectivity in power systems

Tabia Ahmad, Panagiotis N Papadopoulos
(University of Strathclyde)

O3.2   Risk assessment of cascading failures in power systems with high renewable penetration

Yitian Dai, Robin Preece (The University of Manchester),
Mathaios Panteli (University of Cyprus)

O3.3   Changing pathways to power system collapse: an updated review of large disturbances and blackout events

Callum MacIver, Keith Bell, Abigail Colson and Tim Bedford
(University of Strathclyde)

15:15 – 15:40   Poster session and refreshments

15:40 – 16:25   Oral session 4 | Weather and climate risks

      O4.1   Dynamic risk assessment of power systems against wildfires

              Rosa Serrano, Alessandra Parisio (The University of Manchester), Mathaios Panteli (University of Cyprus)

      O4.2   How might compound wind and flood risks impact UK infrastructure?

              Hannah Bloomfield (University of Bristol), John Hillier (Loughborough University), Paul Bates (University of Bristol), Len Shaffrey (University of Reading), Adam Griffin, Alison Kay (UK Centre for Ecology & Hydrology), Francesca Pianosi, Rachel James (University of Bristol), Adrian Champion (AON)

      O4.3   Effects of compound events of low winds and cold temperature on Britain's power system

              Lucie Lücke, Chris Dent, Gabi Hegerl, Amy Wilson, Andrew Schurer (University of Edinburgh)

16:25 – 16:30   Closing remarks

16:30 – 17:30   Drinks reception