

2025 EPSRC Supergen Energy Networks Hub Risk and Resilience Day Programme

09:30 – 09:35 Welcome and kick-off

09:35 – 10:20 Keynote 1 | Emily Wallace (Met Office)

Affordable, low-carbon and resilient: how weather and climate insights can improve energy sector decision-making

10:20 – 11:05 Oral session 1 | Wild Weather

O1.1 A framework for developing extreme scenarios: Are we storm ready?

James Fallon, Paula Gonzalez, Anna Whitford, Michael Angus, Joe Osborne, Katie Chowienczyk (Met Office)

O1.2 CCC approach to analysing climate risk and adaptation options in the energy sector

Rachael Steller (Climate Change Committee)

O1.3 Dealing with large-scale offshore wind farm shutdown risk during a severe storm: an adaptive robust optimization approach

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

O1.4 Present-day risk from winter storms in the United Kingdom

Paula Gonzalez, Emily Wallace, Duncan Ackerley, Eloise Matthews, Daisy Harley-Nyang (Met Office)

11:05 – 11:35 Poster introduction session (speed round)

- P1 State of the climate for the UK energy sector 2023-24
Benjamin Hutchins (University of Reading), Matthew Wright (University of Oxford), Hannah Bloomfield (Newcastle University), James Fallon (Met Office)
- P2 Delivering resilience in multi-level, multi-vector energy systems
David Greenwood (Newcastle University), Laiz Souto (University of Bath), Kaiqing Qiu, Shuai Yao (Cardiff University)
- P3 Limits of EV flexibility potential which can be utilised based on the network conditions
Emir Nukic, Victor Levi (The University of Manchester)
- P4 Scenarios for Nordic grid resilience in the energy transition
Freja Bruncrona, Robert Eriksson (Uppsala University, Sweden)
- P5 Challenges and opportunities for improving resilience of electricity distribution networks
Laiz Souto (University of Bath)
- P6 Enabling characterisation of dynamic interactions with probabilistic small-signal analysis
Luke Benedetti (The University of Manchester), Agustí Egea-Àlvarez (University of Strathclyde), Robin Preece, Panagiotis N. Papadopoulos (The University of Manchester)
- P7 A framework to identify and map uncertainties in distribution system planning
Matthew Deakin (Newcastle University) on behalf of the IEEE Modern and Future Distribution System Planning Working Group
- P8 Optimal pricing of electricity in microgrids under the uncertainty of PV, wind and load demand
Mohamed Seralkhatm (Helwan University, Egypt)

- P9 Resilience-driven strategies for the planning of future electricity distribution systems
Saif Al Omairi, Daniel Donaldson (University of Birmingham)
- P10 Quantification and attribution of uncertainty in wind power modelling
Saskia Salwey (University of Bristol), Hannah Bloomfield (Newcastle University), Francesca Pianosi (University of Bristol)
- P11 Adaptive probabilistic method for wind energy forecasting based on generalised logit transformation
Tao Shen, Jethro Browell, Daniela Castro-Camilo (University of Glasgow)
- P12 Whole energy system resilience vulnerability assessment
Yitian Dai, Eduardo A. Martínez Ceseña, Robin Preece (The University of Manchester)
- P13 Network resilience enhancement strategy via coordinated flexibility from electric vehicles and soft open points
Wei Gan, Xun Jiang, Daniel Carr, Jianzhong Wu (Cardiff University)
- P14 Embedding resilience into energy systems: A new or an old challenge?
Natalia-Maria Zografou-Barredo, David Greenwood (Newcastle University), Yitian Dai, Victor Levi (The University of Manchester), Xinyuan He, Laiz Souto (University of Bath), Kaiqing Qiu (Cardiff University)

- 11:35 – 12:00 Poster session and refreshments
- 12:00 – 12:45 Oral session 2 | Securing Supply
- O2.1 Decentralised coordination of local multi-energy microgrids for system-level resilience
Yi Wang, Goran Strbac (Imperial College London)
- O2.2 Weather risk and generation adequacy: security of supply challenges for a weather dependent GB electricity system
Callum MacIver, Keith Bell, Shanay Skellern, Magnus Jamieson (University of Strathclyde)
- O2.3 Balancing-aware security-constrained stochastic optimal power flow for hybrid AC/DC grids with polynomial chaos expansion
Kaan Yurtseven, Hakan Ergun, Dirk Van Hertem (KU Leuven and Etch EnergyVille, Belgium)
- O2.4 Decadal predictions for the European energy sector
Benjamin Hutchins, David Brayshaw (University of Reading), Len Shaffrey (University of Reading, National Centre for Atmospheric Science), Hazel Thornton, Doug Smith (Met Office)
- 12:45 – 13:45 Lunch and posters
- 13:45 – 14:30 Keynote 2 | Ed Beard (National Infrastructure Commission)
- The NIC view of resilience in general and in energy

- 14:30 – 15:15 Oral session 3 | Strategic Innovation Fund Showcase
- O3.1 Predict4Resilience
Jethro Browell (University of Glasgow)
 - O3.2 CREDO+
Elliot Christou (Connected Places Catapult)
 - O3.3 Multi-resilience
Andrew Webster (Northern Powergrid)
 - O3.4 D-SUITE
Andrew Moon (SP Energy Networks), Matt Deakin (Newcastle University)
- 15:15 – 15:40 Poster session and refreshments
- 15:40 – 16:25 Oral session 4 | Infrastructure Insights
- O4.1 Advances in “EXTRA-STRONG” (Resilience evaluation by experimental and theoretical approaches in electrical distribution systems with underground cables)
Luigi Calcara (University of Roma “La Sapienza”), Andrea Mazza (Politecnico di Torino), Paolo Roccato (Istituto Nazionale di Ricerca Metrologica, Italy)
 - O4.2 Predicting environmental risks to the electricity transmission & distribution network
Owen Lauder (Previsico), Tinashe Chikohora (National Grid Electricity Transmission), James Cooper (University of Liverpool), Chris Heaps (Frazer-Nash Consultancy)

O4.3 Multiport power converter to enhance the resilience in a rural distribution network

Montserrat Montalà-Palau, Marc Cheah-Mañé, Oriol Gomis-Bellmunt (CITCEA – UPC, Spain)

O4.4 Provision of distributed grid resilience using EVs during extreme weather events

Peter McCallum, Desen Kirli (University of Edinburgh), Laiz Souto, Killua Qin (University of Bath)

16:25 – 16:30 Closing remarks

16:30 – 17:30 Drinks reception