2026 EPSRC Supergen Energy Networks Hub Risk and Resilience Day Programme

09:30 – 09:35   Welcome and kick-off

09:35 – 10:20   Keynote 1 | Matthew Finn (European Marine Energy Centre)

Energy network resilience: experiences from Orkney

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

O1.1   Stress testing UK electricity distributions networks against future windstorm extremes using high-resolution climate simulations

Colin Manning, Sean Wilkinson, Hayley Fowler (Newcastle University), Christopher Short, Lizzie Kendon (Met Office Hadley Centre)

O1.2   Weather and climate drivers of transmission power outages over the continental US

Isabelle Ariail, David James Brayshaw, Paul D. Williams, Sally Woodhouse, Nicholas J. Leach (University of Reading, Climate X)

O1.3   Global exposure of transmission and distribution networks to fires

Reuben Bunting, Daniel L Donaldson, Kerryn Little, Nick Kettridge (University of Birmingham)

O1.4   Role of distributed flexibility in resilient energy systems: case studies from wind storms and heat waves

Desen Kirli, Weizhe Qin, Peter McCallum, Edward Moroshko, Mohammad Qais (University of Edinburgh), Laiz Souto (University of Bath)

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

P1   Unprecedented winter days for the UK energy sector

Benjamin Hutchins, David Brayshaw (University of Reading), Len Shaffrey (National Oceanography Centre), Hazel Thornton, Doug Smith, Gillian Kay (Met Office Hadley Centre)

P2   State of the climate for the energy sector report 2024/25

Benjamin Hutchins (University of Reading), Matthew Wright (University of Oxford), James Mollard (University of Edinburgh), James Fallon, Paula Gonzalez, Ifan Rogers (Met Office), Iain Staffell (Imperial College London), Stephen Swabey (AECOM), Hannah Bloomfield (Newcastle University)

P3   Assessing future extreme heat risks on UK electrical transmission assets

James Mollard, Chris Dent, Gabi Hegerl (University of Edinburgh), Gordon Wilson (National Grid Electricity Transmission)

P4   Failure modelling of overhead lines exposed to worsening gradual and instantaneous weather hazards due to climate change

Gruffudd Edwards, Oscar Hlustik (TNEI Services)

P5   Preparing for the worst: Long-term and short-term weather extremes in resource adequacy assessment

H.C. Bloomfield (Newcastle University), A, Grochowicz, M. Victoria (Technical University of Denmark)

P6   Resilience-oriented distribution network investment planning under windstorm uncertainties with explicit economic valuation

Maoyuan Yin, Eduardo A. Martínez Ceseña, Jaise Kuriakose (The University of Manchester)

P7   How fragility modelling assumptions influence power system resilience assessments

Yitian Dai, Robin Preece (The University of Manchester)

P8   What triggers cascading outages and blackouts?

Lucas Ameixenda Capeans, Keith Bell, Callum MacIver (University of Strathclyde)

P9   ReBASE: Reanalysis based attribution and storylines of extremes

Vikki Thompson, Andrew Schurer, Gabi Hegerl (University of Edinburgh), Rhidian Thomas, Ed Hawkins (University of Reading)

P10   A generalized multi-stage approach to model power system restoration for resilience assessment

Yao Li, Panagiotis N. Papadopoulos, Robin Preece (The University of Manchester)

P11   KERAUnIC: An innovative project to study the impact of lightning on UK transmission networks

Xue Bai, Xinyuan He, Bohan Li, Xiaoyu Wang, Aisha Ali, Bhavya Shetty, Chenghong Gu, Martin Fullekrug (National Grid Electricity Transmission, University of Bath)

P12   Developing a realistic simulation of severe weather events on electricity distribution networks

Saif Al Omairi, Daniel L. Donaldson (University of Birmingham)

P13   Understanding how compound winter weather hazards drive overhead line fault risk in northern Scotland

Neil Martin, Daniel L. Donaldson (University of Birmingham), Lorenzo Stilo (Manufacturing Technology Centre)

P14   Quantifying resilience of offshore energy systems

Sanaz Mahmoudi, Natalia Maria Zografou Barredo, David Greenwood, Hannah Bloomfield (Newcastle University), Nabila Rufai, Sara Walker (University of Birmingham)

P15   Batteries on congested "windy" networks: solution or problem? A Scottish case study

Susan Brush, Graeme Hawker, Keith Bell (University of Strathclyde)

P16   Producing skilful estimates of a composite weather variable (CWV) for gas demand forecasting at subseasonal to seasonal (S2S) timescale

Aheli Das, David Brayshaw, John Methven, Thomas Frame, Christopher O'Reilly (University of Reading), Shivkumar Sharma, Jake Mammatt, Shane Fox (British Gas, Centrica)

P17   On the use of spatio-temporal network envelopes for flexible, stable and economic operation of power systems

Priyanka Mohapatra (University of Strathclyde)

P18   Risk-based balancing-aware congestion management in hybrid AC/DC grids under continuous non-Gaussian uncertainty

Kaan Yurtseven, Hakan Ergun, Dirk Van Hertem (KU Leuven)

P19   Beyond N-1: Fast frequency support from electrolyzers under extreme contingencies

Juan Camilo Castaño Guzmán, Hakan Ergun, Dirk Van Hertem (KU Leuven)

P20   Strategies for resilient supply chains within a circular economy environment: Application of systems dynamics approach to the UK (grid upgrade) ASTI framework

Emeka Nwonu, Eduardo Munive-Hernandez, Cuong Dao (University of Bradford)

P21   Planning under risk: Coordinated operation of power grid and large-scale data centers

Jiakai Wu, Wei Sun, Pengyu Ren, Yifan Wang (University of Edinburgh)

P22   Who is left cold in a "green" island system? Mapping housing and heating risk in Orkney

Androniki Papathanasi, Daniel Friedrich (University of Edinburgh)

P23   Cyber-physical resilience evaluation of prime exchangers

Emilio Miguelañez Martin (ENODA Ltd)

P24	ICECREAM: Investigating coastal and estuarine climate risks on electricity asset management
	Aisha Ali, Douglas Dodds (National Grid Electricity Transmission), James Cooper (University of Liverpool) Jessica Dally, Mingxi Shen (Previsco Ltd)

P25	Predicting fleetwide SF_6 leakage framework to support asset management decisions
	Ting Liu, Blair David Brown, Junyi Lu, Allan Holton, Fiona Irwin, Luis de la Barba, Gordon Wilson, Dan Jones, Rob Terret-Hensman, Brian Stewart, Bruce Stephen (University of Strathclyde, National Grid Electricity Transmission)

P26	Risk-based dynamic thermal rating in distribution transformers via probabilistic forecasting
	Scott Angus, David Greenwood, Matthew Deakin (Newcastle University), Jethro Browell (University of Glasgow)

P27	Comparing robustness and adaptability as ways to manage LV network optioneering under deep uncertainty
	Adam Duncan (University College London)

P28	Co-simulation of energy and transport networks for increased EV adoption
	Tariro Mupfurutsa, Desen Kirli (University of Edinburgh)

P29	Fault location technique to improve resilience in double-circuit transmission lines
	V. H. Gonzalez-Sanchez, V. Torres (University of Bath)

P30	Decentralized real-time TSO-DNO coordination under uncertainty
	Wenqi Ni, Lars Schewe, Chris Dent (University of Edinburgh)

P31	Climate-resilient heat electrification for net-zero emission whole energy systems

Sanaz Mahmoudi, Richard Dawson, Vladimir Terzija, Shahab Dehghan (Newcastle University), Yi Wang, Goran Strbac (Imperial College London), Marko Aunedi (Brunel University of London)

P32	Probabilistic projections for gas system planning

Rosemary Tawn, Sarah Sheehy, Gordon McFadzean, Gruffudd Edwards (TNEI Services), Hannah Bloomfield (Newcastle University)

P33	A proposed approach for combined wind and temperature loading of power transmission lines considering climate change effect

Mohammad Ali Jafari, Salman Rezazadeh Baghal, Amir Mahmoudi (Niroo Research Institute)

P34	DAFNI: Data and analytics facility for national infrastructure

Tom Kirkham (DAFNI)

11:35 – 12:00	Poster session and refreshments

12:00 – 12:45	Oral session 2	Mind-blowing Models

O2.1	MOSAIC: Modelling, simulation and analysis innovation centre

Agusti Egea Alvarez (SPEN & Strathclyde University)

O2.2	FRAME: Forecasting risk through asset modelling and evaluation

Aisha Ali (National Grid Electricity Transmission Plc), Ausra Miksyte, Lewis Morgan, Shida Bassiti, Edward Sharkey (Baringa Partners Ltd)

O2.3	Use of distributed AI – grid foundation models – for accelerated reliability assessment
	Ignacio Hernando Gil, Mikka Kisuule, Ricardo Bessa (INESC TEC, Porto)

O2.4	Validated model of AC cascading failure model (AC-CFM) for real-time environments
	Spyros Skarvelis-Kazakos (University of Sussex), Robert Brown, Sandra Dudley (London South Bank University)

12:45 – 13:45	Lunch and posters

13:45 – 14:30	Keynote 2	Danielle Butler (National Energy Action)
	Cold Homes and Health: What Fuel Poverty Tells Us About Risk

14:30 – 15:15	Oral session 3	Frameworks & Futures

O3.1	Are we talking about the same future? Stakeholder ambiguity in distribution network planning
	Adam Duncan (University College London)

O3.2	Resilire: A framework for resilience modelling in electricity networks
	Daniel Wilson, Lewis Wright (SP Electricity North West))

O3.3	Considering resilience in decision-making for power system planning
	Matteo Rossini, Hakan Ergun (KU Leuven)

| O3.4 | Probability-preserving scenario clustering of renewable probabilistic forecast envelopes for flexibility-oriented power system operational planning |
| | Mohammad Habieb Alkhayat, Eduardo A. Martínez Ceseña (The University of Manchester) |

| 15:15 – 15:40 | Poster session and refreshments |

| 15:40 – 16:25 | Oral session 4 | Re-stabilising & Restoring |

| O4.1 | The collapse of the power system on the Iberian peninsula: what lessons for us in Britain? |
| | Keith Bell (University of Strathclyde) |

| O4.2 | BLADE: Black start demonstrator from offshore wind |
| | Daniel Barlow (SPEN) |

| O4.3 | Grid resilience in future systems with high shares of inverter-based resources |
| | Freja Bruncrona, Robert Eriksson (Uppsala University) |

| O4.4 | Contingency-constrained hierarchical stochastic micro-market model considering frequency stability |
| | Tohid Abedi, Mazaher Karimi (University of Vaasa) |

| 16:25 – 16:30 | Closing remarks |

| 16:30 – 17:30 | Drinks reception |