Durham University
Durham Energy Institute

REDHILLS

DEI Energy Day 2026

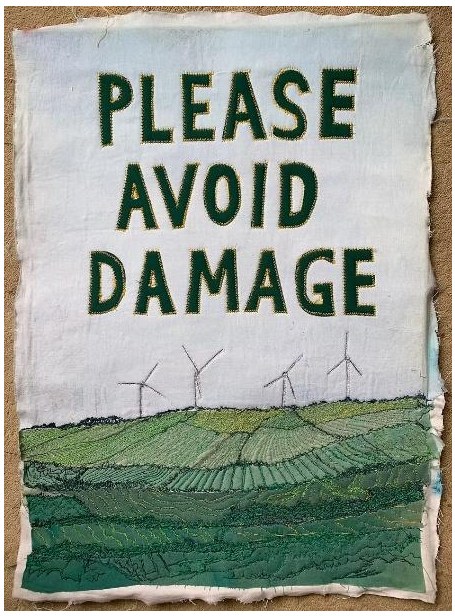
Safe and Sound: Energy Security, Innovation and Communities

Durham Miners' Hall, Redhills, Flass Street, Durham, DH1 4BE

Thursday 5 November 2026, 9am - 5pm

Durham Energy Institute's annual Energy Day brings together leading voices from academia, industry, policy and communities to explore how energy shapes societies, economies and environments in the North East and around the world.

Hosted by Durham Energy Institute at Durham University, this year's annual Energy Day conference will focus on energy security in the current era of geopolitical shocks, rising energy demand and accelerating climate impacts. We draw on Durham's world-leading expertise in inclusive energy transitions, energy systems research, offshore wind, geothermal energy, hydrogen, and marine energy systems. The conference will examine how to adapt our energy systems to be resilient, just and locally rooted while contributing to national and global energy security goals.



The conference will build on the success of Energy Days 2025 at Redhills which showcased inclusive innovation, intergenerational dialogue and the North East's leadership in clean energy transitions. The event will feature keynote talks, research showcases and interactive sessions with partners from government, business and civil society. Participants will explore practical pathways to reduce exposure to volatile fossil fuel markets, cut emissions, tackle fuel poverty and ensure that no community is left behind in the shift to a more secure energy future.

Programme

- 9.00-9.30 - Arrival, registration, refreshments
- 9.30-9.40 - Welcome by DEI Executive Director Professor Simone Abram
- 9.40-10.40 - Plenary opening keynote – **Energy Security in a Turbulent World** – Bill Esterton MP, Chair of the DESNZ Select Committee
- 10.40 – 11.10 - Refreshment break
- 11.10-12.30 - Breakout round 1 (research showcases)
    - *Banner Room* - **Inclusive transitions** - a roundtable discussion exploring how inclusion shapes innovation, workforce development and decision-making in energy security, innovation and communities. The session features case studies from the EDI+ programme

      Chair: Professor Simone Abram, Executive Director Durham Energy Institute
      Panellists: Dr Danielle Johnson, DEI Fellow & Department of Anthropology
      Dr , DEI Fellow & Department of Engineering
      Jack Beckwith, Thirteen Homes

    - *Cinema Room* - **Energy security and geopolitics** - short research talks on supply chains, system vulnerability, critical infrastructure and market shocks

      Chair: Professor Gavin Bridge, DEI Fellow & Department of Geography
      Panellists: Professor Anoush Ehteshami, DEI Fellow &* School of Government and International Affairs
      Professor Joanna Berry, DEI Co Director & Durham University Business School
      Dr Paavo Tertsunen, Lappeenranta-Lahti University of Technology
      Dr Carl Hunter OBE, Coltraco Ultrasonics

    - *Committee Room* - **Energy justice and community engagement** - session on fuel poverty, trust, consent and how communities experience transition differently

      Chair: Dr Felix Ringle, DEI Fellow & Department of Anthropology
      Panellists: Dr Costanza Consetti, PDRA, University of Aberdeen
      Alix Collingwood, Head of Engagement, Redhills
      Craig Richardson, Energising East Durham

    - *Muniments Room* - **Data and modelling for resilience** - good for systems researchers and can link technical modelling to policy choices

      Chair: Professor Danny Donaghue, Department of Geography
      Panellists: Professor Hong Sun, DEI Fellow & Department of Engineering
      Dr Anish Jindal, DEI Fellow & Department of Computer Science
      Katie Privet, NESO

    - *Pitman's Parliament* – **Clean, resilient power technologies** - focused showcases on offshore wind, solar, geothermal, hydrogen, storage, and marine energy, and how scaling

these technologies can reduce fossil fuel dependence and strengthen the UK's energy security.

Chair: Professor Tony Roskilly, DEI Co Director & Department of Engineering
Panellists: Dr Charlotte Adams, DEI Co-Director & National Geothermal Centre
Jen Wilson, PhD Student, Department of Engineering
Chong Ng, ORE Catapult

- 12.30-14.00 - Lunch + research poster competition
- 14.00-14.30 - Plenary: **Energy Security in the Ukraine** – Olena Tuypakhina, Vice-Rector for International Affairs to Durham, Zaporizhzhia National University
- 14.30-15.30 - Breakout round 2 (action/engagement)
    - *Banner Room* - **Policy design lab** - small-group work on "what would make this policy work in the North East?" with outputs captured for the closing plenary *(NGC Minewater Heat Policy)*

      Chair: Ross Lowrie, Head of Clean Energy & Environment, NECA & DEI Advisory Board Member
      Panellists: Dr Charlotte Adams, CEO, National Geothermal Centre
      Dr Claire Copeland, DEI Fellow & Department of Engineering
      Helen Goodman, DEI External Fellow

    - *Cinema Room* - **Heat, homes and place-based delivery** - retrofit, heat networks, local authority delivery and neighbourhood decarbonisation

      Chair: Dr Andy Smallbone, DEI Fellow & Department of Engineering
      Panellists: Susmita Koley, Department of Engineering
      Dr Elaine Forde, DEI Fellow & Department of Anthropology
      Dr Nima Gerami Seresht, DEI Fellow & Department of Engineering
      Dr Mark Davis, University of Leeds (TBC)
      Mary Foy MP, MP for Durham City

    - *Committee Room* - **Financing Climate Change Adaptation by Households and Communities** - Unlocking investment through co-creation

      Chair: Professor Laura Marsiliani, DEI Fellow & Durham University Business School
      Panellists: Fraser Stewart, GB Energy (TBC)
      Steve Hall, University of York
      Jessica Hogan, Regen (TBC)
      Ingrid Edmund, National Wealth Fund (TBC)

    - *Muniments Room* - **UK Energy Security from Policy to Investments** - one room for business and industry partners to discuss policy, barriers, investment and implementation

      Chair: Professor Alan Lowdon OBE, DEI Professor in Practice
      Panellists: Tim Longstaff, Roland Berger
      Dr Andrew Crossland, NESO & DEI Associate Professor in Practice
      Tony Quinn, OREC
      Dr Daniel Atzori, Head of Intelligence, Inspiratia & DEI Advisory Board

- *Pitman's Parliament* - **Community energy in practice** - case studies on local generation, ownership, advice services and participation

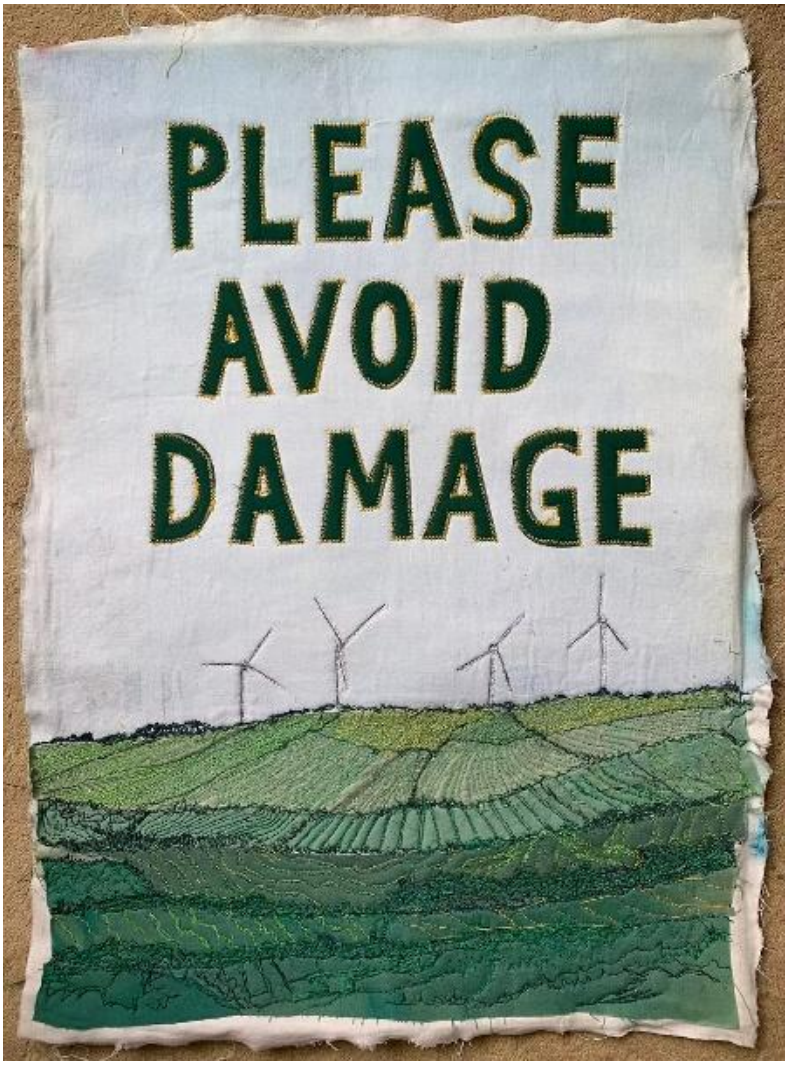
  Chair: Helen Stockton, Senior Researcher, National Energy Action
  Panellists: Ahmad Ashqar, DEI Fellow & Department of Anthropology
  Professor Ben Campbell, DEI Fellow & Department of Anthropology
  Rox Nicholl, East Durham Trust

- 15.30-16.00 - Refreshment break
- 16.00-17.00 - Closing plenary panel - **DEI impacts**

  A concluding discussion reflecting on Durham Energy Institute's impact across research, innovation, policy engagement and community partnerships, and considering how these contributions can help shape a more secure, inclusive and resilient energy future.

  Chair: Professor Tony Roskilly, DEI Co Director & Department of Engineering
  Panellists: Professor Joanna Berry, DEI Co Director & Durham University Business School
  Professor Stuart Jones, DEI Co Director & Department of Earth Sciences

- 17.00-17.15 – Closing remarks – Laurence Carpanini, Chair, DEI Advisory Board
- 17.15-18.30 - Networking drinks reception
- 19.00-21.00 - Conference dinner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Session Details

Inclusive transitions - a roundtable discussion exploring how inclusion shapes innovation, workforce development and decision-making in energy security, innovation and communities. The session features case studies from the EDI+ programme.

A successful energy transition depends not only on technological innovation, but on ensuring that the benefits, opportunities and decision-making processes are shared fairly across society. This interactive roundtable will explore how equality, diversity and inclusion (EDI) can strengthen energy security, drive innovation and support resilient communities by bringing a wider range of perspectives, experiences and expertise into the energy sector.

Drawing on case studies from the EDI+ programme, the session will demonstrate how inclusive approaches can improve research, policy development, workforce participation and community engagement. Panellists will share practical examples of initiatives that have removed barriers to participation, supported underrepresented groups, and embedded inclusive practices within research, industry and public policy. The discussion will consider how these approaches lead to more creative problem-solving, better-informed decision-making and solutions that are more responsive to the needs of diverse communities.

The roundtable will also examine the challenges facing the sector, including addressing skills shortages, attracting and retaining a diverse workforce, ensuring fair access to emerging green jobs, and involving communities in decisions that affect them. Participants will explore how inclusive leadership and meaningful stakeholder engagement can help build public trust, increase acceptance of new energy infrastructure, and ensure that the transition to net zero delivers social as well as environmental and economic benefits.

Designed to encourage discussion and knowledge exchange, this session will invite delegates to share experiences and identify practical actions that universities, industry, government and communities can take to embed inclusion at the heart of the UK's energy transition. It will be particularly valuable for researchers, policymakers, industry professionals, community organisations and anyone interested in creating an energy system that is not only clean and secure, but also fair, representative and inclusive.

Energy security and geopolitics - short research talks on supply chains, system vulnerability, critical infrastructure and market shocks.

As geopolitical tensions, climate change and rapidly evolving energy markets reshape the global energy landscape, understanding the links between energy systems and international affairs has never been more important. This session will bring together a series of concise, research-led presentations examining the risks, vulnerabilities and opportunities that influence the UK's energy security in an increasingly uncertain world.

Researchers will present the latest evidence on topics including critical mineral and technology supply chains, the resilience of electricity and gas networks, cyber and physical threats to critical infrastructure, and the impacts of global market volatility on energy affordability and security of supply. The talks will also explore how international conflicts, trade relationships, resource competition and shifting geopolitical alliances are influencing the pace and direction of the energy transition.

The session will consider how governments, industry and researchers can identify and mitigate systemic risks while building a more resilient and adaptable energy system. Speakers will discuss strategies for diversifying supply chains, strengthening domestic capabilities, improving infrastructure resilience, and using data, modelling and scenario analysis to anticipate future disruptions. The implications for energy policy, investment, innovation and long-term strategic planning will also be explored.

Designed to stimulate discussion across disciplines, this session will demonstrate how cutting-edge research can inform policy and decision-making in a rapidly changing global environment. It will be particularly relevant to researchers, policymakers, industry professionals and anyone interested in the intersection of energy security, international relations and resilient infrastructure, providing fresh insights into how the UK can navigate an increasingly complex geopolitical landscape while maintaining secure, affordable and sustainable energy supplies.

Energy justice and community engagement - session on fuel poverty, trust, consent and how communities experience transition differently.

The transition to a low-carbon energy system will only succeed if it is fair, inclusive and responsive to the needs of the people and places it affects. This session will explore the social dimensions of energy transition, examining how issues of energy justice, fuel poverty, trust and public participation shape the success of energy policies and infrastructure projects. Bringing together researchers, policymakers and community representatives, the discussion will highlight why different communities experience the transition in different ways and what this means for creating equitable energy futures.

Presentations will explore how factors such as geography, income, housing quality, industrial heritage and access to services influence people's experiences of rising energy costs, decarbonisation policies and new energy developments. The session will examine the persistent challenge of fuel poverty, considering how vulnerable households can be supported while accelerating the transition to cleaner energy systems.

A key focus will be the importance of building trust and securing meaningful public consent for energy projects. Speakers will discuss effective approaches to community engagement that move beyond consultation towards genuine collaboration, ensuring that local knowledge, lived experience and community priorities are reflected in decision-making. Case studies will demonstrate how co-design, transparent communication and long-term partnerships can improve project outcomes, increase public confidence and strengthen community resilience.

The session will also consider how the costs and benefits of the energy transition are distributed, asking who gains, who bears the burden, and how policy can ensure that no communities are left behind. Delegates will explore how principles of fairness, inclusion and social justice can be embedded within energy research, innovation and policymaking to deliver a transition that is not only secure and sustainable, but also widely supported and socially beneficial.

This session will be of particular interest to researchers, policymakers, local authorities, industry professionals, charities and community organisations seeking to understand how people and places can be placed at the heart of the UK's journey towards a resilient, affordable and equitable energy system.

Data and modelling for resilience - good for systems researchers and can link technical modelling to policy choices.

As the UK's energy system becomes increasingly interconnected, decentralised and data-driven, advanced modelling and analytics are playing a critical role in supporting resilient, evidence-based decision-making. This session will explore how data science, systems modelling and digital tools can help researchers, policymakers and industry understand the complex interactions within energy systems and make informed choices about future investment, infrastructure and policy.

Through a series of research presentations and demonstrations, speakers will showcase innovative approaches to modelling energy systems across multiple scales, from individual technologies and local energy networks to regional infrastructure and national energy scenarios. Topics may include whole-systems modelling, digital twins, artificial intelligence, demand forecasting, climate risk modelling, network optimisation and scenario analysis, illustrating how these techniques can improve our understanding of uncertainty, resilience and system performance.

A key theme of the session will be bridging the gap between technical analysis and practical decision-making. Panellists will discuss how robust modelling can inform policy development by evaluating the potential impacts of different energy pathways, testing the resilience of future energy systems to economic, environmental and geopolitical shocks, and identifying trade-offs between affordability, sustainability and security of supply. The discussion will also consider the importance of data quality, transparency, uncertainty and interdisciplinary collaboration in ensuring that modelling outputs are trusted and effectively translated into policy and practice.

By bringing together experts in engineering, computer science, mathematics, economics and policy, the session will demonstrate how integrated systems approaches can support more resilient energy planning and accelerate the transition to a secure, low-carbon energy future. It will be particularly valuable for systems researchers, data scientists, engineers, policymakers and industry professionals interested in using cutting-edge analytical tools to address some of the most complex challenges facing the UK's energy system.

Clean, resilient power technologies - focused showcases on offshore wind, solar, geothermal, hydrogen, storage, and marine energy, and how scaling these technologies can reduce fossil fuel dependence and strengthen the UK's energy security.

This panel will explore the technologies that are driving the transition to a cleaner, more secure and more resilient UK energy system. Through a series of focused showcases, experts from industry and academia will examine the latest developments in offshore wind, solar power, geothermal energy, hydrogen, energy storage and marine energy, highlighting both technological innovation and real-world deployment.

The discussion will consider how these complementary technologies can work together to create a flexible, low-carbon energy system capable of meeting future demand while reducing dependence on imported fossil fuels. Panellists will explore the challenges of scaling up deployment, including infrastructure, grid integration, supply chains, investment, skills and planning, alongside the opportunities presented by emerging technologies and regional innovation.

The session will also examine the role these technologies play in strengthening the UK's energy security by improving energy independence, increasing system resilience against geopolitical and climate-related

disruptions, and supporting reliable, affordable energy supplies. Drawing on examples from across the UK, the panel will demonstrate how accelerating the deployment of clean energy technologies can deliver economic growth, create high-quality jobs, and contribute to the UK's net zero ambitions while building a more robust and secure energy future.

This session will be particularly relevant to researchers, technology developers, policymakers, industry leaders and anyone interested in the practical solutions shaping the UK's future energy landscape.

Policy design lab - small-group work on "what would make this policy work (need to choose a policy!) in the North East?" with outputs captured for the closing plenary.

The Policy Design Lab is an interactive workshop that will bring together researchers, policymakers, industry representatives and community stakeholders to explore how national energy policy can be effectively implemented within the unique social, economic and industrial context of North East England. Rather than focusing on policy in theory, participants will work collaboratively to examine the practical challenges, opportunities and trade-offs involved in delivering successful regional implementation.

Using a selected contemporary energy policy as the focal point (to be confirmed), participants will work in small, facilitated groups to address the central question: "What would make this policy work in the North East?" Drawing on their diverse expertise and experiences, delegates will consider the policy through multiple perspectives, including economic growth, energy security, innovation, skills, infrastructure, community engagement, environmental impact and social justice.

The workshop is designed to encourage open discussion across disciplinary and sector boundaries, recognising that successful policy depends not only on technical solutions but also on governance, public trust, investment, partnerships and local capacity. Groups will identify potential barriers to implementation, propose practical solutions, and consider how policy could be adapted to reflect the region's strengths, challenges and ambitions.

The outputs from each group will be captured and synthesised into a series of recommendations that will be presented during the conference's closing plenary. These insights will provide a collective perspective on how national energy policy can better support regional priorities, inform future policymaking and strengthen collaboration between academia, government, industry and communities.

This highly participatory session will appeal to anyone interested in translating research into real-world impact. By combining evidence, lived experience and practical expertise, the Policy Design Lab will demonstrate how collaborative, place-based approaches can help shape energy policies that are not only ambitious, but also deliverable, equitable and responsive to the needs of the North East.

Heat, homes and place-based delivery - retrofit, heat networks, local authority delivery and neighbourhood decarbonisation.

Decarbonising heat remains one of the UK's greatest energy challenges, requiring coordinated action across housing, infrastructure, local government and communities. This session will explore how place-based approaches can accelerate the transition to low-carbon heating while improving energy efficiency, reducing fuel poverty and creating warmer, healthier homes.

Bringing together researchers, local authorities, housing providers and industry experts, the session will showcase innovative projects and practical experiences in domestic retrofit, heat networks, neighbourhood-scale decarbonisation and local energy planning. Speakers will examine how these approaches can be tailored to the needs of different communities, recognising that housing stock, geography, heritage, demographics and local capacity vary significantly across the UK.

A key focus will be the role of local authorities and regional partnerships in delivering large-scale change. Discussions will explore how councils and combined authorities can coordinate funding, planning, skills development and community engagement to deliver effective retrofit programmes and low-carbon heat infrastructure. Case studies will highlight successful examples of collaboration between government, academia, industry and local communities, demonstrating the benefits of integrated, place-based delivery.

The session will also address the practical challenges facing the sector, including financing retrofit, developing supply chains, overcoming skills shortages, ensuring quality assurance, and engaging householders in the transition. Speakers will consider how policies and delivery models can be designed to ensure that decarbonisation programmes are accessible, affordable and equitable, particularly for vulnerable households and those at risk of fuel poverty.

By examining how technical innovation, local leadership and community engagement can work together, this session will demonstrate the importance of place-based solutions in delivering a resilient, low-carbon future. It will be particularly relevant to researchers, local government officers, policymakers, housing associations, industry professionals and community organisations working to transform homes and neighbourhoods while supporting the UK's wider energy security and net zero ambitions.

Financing Climate Change Adaptation by Households and Communities - Unlocking Investment Through Co-Creation.

As the impacts of climate change become increasingly visible, investment in adaptation is no longer solely the responsibility of governments and large organisations. Households and communities have a critical role to play in building resilience to flooding, extreme heat, drought, coastal erosion and other climate-related risks. However, significant financial, social and institutional barriers continue to limit the ability of many communities to invest in adaptation measures. This session will explore how collaborative, co-created approaches can unlock new investment opportunities and ensure that climate adaptation is both locally relevant and socially equitable.

Bringing together researchers, policymakers, financial institutions, local authorities and community organisations, the session will examine innovative models for financing climate adaptation at the local level. Discussions will consider how public funding, private investment, community finance and blended funding mechanisms can be combined to support resilience while reducing financial risk for households. Speakers will also explore the role of insurance, green finance, local investment funds and innovative financial instruments in enabling communities to prepare for future climate impacts.

A central theme of the session will be co-creation, working with communities rather than designing solutions for them. Through case studies and practical examples, panellists will demonstrate how involving residents, local businesses and civic organisations in the design and delivery of adaptation projects leads to greater public trust, stronger local ownership and investments that better reflect community priorities and lived experience. The discussion will also examine how co-created approaches can improve access to finance for vulnerable and underrepresented communities, ensuring that climate resilience does not become another source of inequality.

The session will conclude by considering how universities, local government, industry and communities can work together to develop scalable, place-based financing models that support long-term adaptation and resilience. It will be particularly relevant to researchers, policymakers, local authorities, financial organisations, charities and community leaders interested in creating practical, inclusive and sustainable approaches to financing climate adaptation while strengthening the resilience of households and communities across the UK.

UK Energy Security from Policy to Investments - one room for business and industry partners to discuss policy, barriers, investment and implementation.

Delivering a secure, affordable and low-carbon energy system requires more than ambitious policy, it depends on attracting investment, overcoming delivery barriers and creating the conditions for long-term collaboration between government, industry and academia. This industry-focused forum will provide a dedicated space for business leaders, investors, policymakers and researchers to explore how the UK's energy security ambitions can be translated into practical action and commercial success.

The session will examine the policy landscape shaping the UK's energy future, considering how regulation, market mechanisms and public investment influence private sector confidence and the pace of deployment. Panellists will discuss the opportunities emerging from the UK's clean energy agenda, alongside the challenges that continue to affect project delivery, including planning and permitting, grid capacity, supply chains, skills shortages, access to finance and regulatory uncertainty.

A key focus will be on identifying what is needed to unlock greater investment across the energy sector. Participants will explore how government policy can provide the stability and certainty required to attract long-term capital, while considering the role of public-private partnerships, innovation funding, regional investment strategies and emerging financial models in accelerating deployment. The discussion will also highlight the importance of strengthening collaboration between industry, universities and policymakers to ensure that research and innovation are translated into commercially viable solutions.

Designed as an open and interactive discussion, the session will encourage participants to share experiences, identify common barriers and propose practical recommendations for improving the UK's investment environment. Particular attention will be given to the opportunities for the North East to build on its industrial heritage, world-class research capabilities and growing clean energy sector to become a leader in the UK's energy transition.

This session will be particularly relevant to business leaders, investors, developers, policymakers, local authorities, researchers and industry partners seeking to understand how policy, investment and implementation must work together to deliver a resilient, competitive and secure energy system for the UK.

Community energy in practice - case studies on local generation, ownership, advice services and participation.

Community energy is playing an increasingly important role in delivering a more resilient, affordable and locally owned energy system. This session will showcase real-world examples of how communities across the UK are developing, managing and benefiting from local energy initiatives, demonstrating the practical contribution that community-led action can make to the UK's energy security and net zero ambitions.

Through a series of case studies, speakers will highlight successful projects in local renewable energy generation, community ownership models, energy advice services and citizen participation. Examples may include community-owned solar and wind schemes, shared ownership of energy assets, local energy cooperatives, neighbourhood energy planning and initiatives that support households in improving energy efficiency and reducing energy bills. The session will explore how these projects create social, environmental and economic value by keeping investment and benefits within local communities.

The discussion will also examine the factors that enable community energy projects to succeed, including access to finance, supportive policy and regulation, partnerships with local authorities and industry, technical expertise and meaningful public engagement. Speakers will reflect on the barriers that many community organisations continue to face, such as funding uncertainty, grid connectivity, governance capacity and long-term sustainability, while identifying opportunities for scaling up successful models across different regions.

A central theme of the session will be the importance of participation and local ownership in building trust and public support for the energy transition. By giving communities a direct stake in energy generation and decision-making, community energy initiatives can strengthen local resilience, tackle fuel poverty, develop local skills and create lasting social value alongside environmental benefits.

This session will be particularly relevant to community organisations, local authorities, researchers, policymakers, energy practitioners and industry partners interested in developing practical, place-based solutions that empower communities to play an active role in shaping a cleaner, fairer and more resilient energy future.