

Opening Plenary Session

09:00-10:30 Chair: Prof Sir Jim McDonald, Principal and Vice Chancellor, University of Strathclyde

Civic welcome on behalf of the City of Glasgow: Deacon Convener Keith Brown OBE; Rt Hon Nicola Sturgeon MSP, The First Minister of Scotland; Keith Anderson, Chief Corporate Officer, ScottishPower and Chief Executive Officer, ScottishPower Renewables; George Gillespie, Acting Executive Director of Land and Environmental Services, Glasgow City Council; Prof Jim Watson, Director, UK Energy Research Centre (UKERC);

Julian Leslie, Head of Electricity Network Development, National Grid

	Offshore Wind Track (Lomond Auditorium) <i>Sponsored by Shepherd and Wedderburn</i>	Carron	Smart Urban Mobility Solutions 2017 (Alsh 1) <i>Sponsored by Shepherd and Wedderburn</i>	Sustainable and Smart Cities (Alsh 2) <i>Sponsored by Shepherd and Wedderburn</i>	Hall 1	Boisdale	Dochart	Leven	Morar/Ness	Gala
11:00-12:30	Offshore wind 1 Panel: LCOE of offshore wind and 'Offshore Wind Market Forecast'	Marine renewables 1 Panel: The tidal power LCOE race – who will win, why and by when?	Smart Urban Mobility Solutions 1 Transport in Scotland: Now and the next 10 years <i>Organised by Transport Scotland</i>	Sustainable cities and the Great Debate: 'Aspiration versus implementation... translating policy into projects?'	Innovate UK infrastructure systems innovation showcase 1	Farming/ landowning community: renewable and low carbon energy solutions	Onshore wind 1 Scottish onshore wind policy update and panel discussion of turbine size in Scotland's landscape	Finance & funding The farther back you can look, the farther forward you are likely to see	TPOcean: ocean energy networking lunch 11:00-13:00	Energy systems
	<i>Visit exhibition</i>	<i>Visit exhibition</i>	<i>Visit exhibition</i>	<i>Visit exhibition</i>	Innovate UK Networking event	H2FC SUPERGEN Hub 'Lunch & Learn' Three evidence-based white papers on the impact of hydrogen and fuel cell technologies 13:00-14:00	<i>Visit exhibition</i>	<i>Visit exhibition</i>		
14:00-15:30	Offshore wind 2 The importance of the supply chain	Marine renewables 2 Panel: Marine energy supply chain opportunity <i>Organised by Offshore Renewable Energy Catapult</i>	Smart Urban Mobility Solutions 2 What smart cities are doing (part 1)	Sustainable cities Energy efficiency and retrofit	Innovate UK infrastructure systems innovation showcase 2	Panel: Hydrogen's role in the future energy system Spend, scale and timetable? <i>In association with SHFCA</i>	Onshore wind 2 Making the most of your assets - wind farm monitoring, control and optimisation	International cooperation on renewable energy projects in Taiwan 14:00-15:30 Followed by networking from 15:30-17:00	Bioenergy 1 Biomass and biogas	The Czech Republic Revolution in battery storage and renewable and low carbon energy solutions
	<i>Visit exhibition</i>	<i>Visit exhibition</i>	<i>Visit exhibition</i>	<i>Visit exhibition</i>	<i>Visit exhibition</i>	<i>Visit exhibition</i>	<i>Visit exhibition</i>	<i>Organised by National Energy Program-Phase II (NEP-II) Program Office</i>	<i>Visit exhibition</i>	<i>Visit exhibition</i>
16:00-17:30	Offshore wind 3 Offshore wind trajectory	Marine renewables 3 All-Energy 2017 Marine Renewable Energy Investment Challenge	Smart Urban Mobility Solutions 3 Connected and autonomous vehicles <i>Organised with ITS United Kingdom</i>	Sustainable and smart cities Challenges, opportunities and solutions	Innovate UK infrastructure systems innovation showcase 3	Offshore renewable energy in Scottish waters – planning, licensing and science for the present and future <i>Organised by Marine Scotland</i>	Energy storage 1 Making energy storage happen		Bioenergy 2 Biomass, biogas & biofuel	Grid 1 The future power system - impacts and opportunities from transformation <i>Organised by the FPSA Project Team; delivered by The IET and Energy Systems Catapult</i>

18:00 Giant Networking evening at the Glasgow Science Centre – all welcome!

- During the day there will be two quick fire seminar theatres in action on the exhibition show floor: **Wave and Tidal** and **Community and Local Energy**
- **Meet the Buyers** timed 1-2-1 meetings during the day

12:00 All-Energy Lunch 'n' Learn: Opportunities in the Renewable Sector – hosted by Aberdeen:

<http://www.all-energy.co.uk/en/Whats-On/Associated-Events-2017/Wednesday-10-May/Lunch-date-Opportunities-in-the-Renewable-Sector/>

Thursday 11 May 2017

09:30-10:30 Day 2 Plenary: The Effects of Brexit on the Renewable and Low Carbon Energy Sectors

Chair: Dr Nina Skorupska CBE FEI, CEO, Renewable Energy Association (REA).

Scene setting address: Brexit horizons for Scottish and UK energy policy: taking back control? – Prof Karen Turner, Director of the Centre for Energy Policy, University of Strathclyde

Followed by panel discussion, involving: Matthew Knight, Director of Energy Strategy and Government Affairs, Siemens; Clare Foster, Partner, Banking and Finance and Head of Clean Energy, Shepherd and Wedderburn; Martin Wright, Managing Director, Aurora Ventures & Chairman, REA; Nicola McEwen, Professor of Territorial Politics and Associate Director, ESRC Centre on Constitutional Change; Aileen McHarg, Professor of Public Law at the University of Strathclyde

	Offshore Wind Theatre (Lomond Auditorium) <i>Sponsored by Shepherd and Wedderburn</i>	Carron (200)	Smart Urban Mobility Solutions 2017 (Alsh 1) (100) <i>Sponsored by Shepherd and Wedderburn</i>	(Alsh 2) (100)	Hall 1	Boisdale (100)	Dochart (200)	Leven (100)	Morar/Ness (100)
11:00-12:30	Offshore wind 4 Floating wind <i>Organised with DNV GL</i>	Marine renewables 4 Focus on wave	Smart Urban Mobility Solutions 4 Powering from renewables	Hydropower <i>Organised with the British Hydropower Association</i>	Low carbon heat 1 Setting the scene	Carbon capture and storage	Energy storage 2 Growing the energy storage market	Local energy <i>Organised with Local Energy Scotland and Highlands and Islands Enterprise</i>	Grid 2 Smart data, smart meters, smart grid
	<i>Visit exhibition</i>	<i>Visit exhibition</i>	<i>Visit exhibition</i>	<i>Visit exhibition</i>	<i>Visit exhibition</i>	<i>Visit exhibition</i>	<i>Visit exhibition</i>	<i>Visit exhibition</i>	<i>Visit exhibition</i>
13:00-14:30	Offshore wind 5 Innovation	Marine renewables 5 Marine energy in focus	Smart Urban Mobility Solutions 5 What smart cities are doing (part 2)	The commercial advantages of a joined up energy strategy <i>Organised by Scottish Energy Association</i>	Low carbon heat 2 District heating and smart metering	Energy from waste	Energy storage 3 New developments in energy storage	Solar <i>Organised with the Solar Trade Association</i>	Grid 3 Ancillary market and sharing services
	<i>Visit exhibition</i>	<i>Visit exhibition</i>	<i>Visit exhibition</i>	<i>Visit exhibition</i>	<i>Visit exhibition</i>	<i>Visit exhibition</i>	<i>Visit exhibition</i>	<i>Visit exhibition</i>	<i>Visit exhibition</i>
15:00–16:30	Offshore wind 6 Cabling: the critical link	Marine renewables 6 Returning to tidal power	Smart Urban Mobility Solutions 6 Keep charging on: fuelling the future – now!	Onshore wind 3 Challenges and opportunities	Low carbon heat 3 There's more to low carbon heating than district heating				

- During the day there will be two **quick fire seminar theatres** in action: **Offshore Wind** and **Business Energy Efficiency**
- **Meet the Buyers** timed 1-2-1 meetings during the day

Subject to change, please check website regularly

<http://www.all-energy.co.uk/en/Whats-On/Conference/>

12:00 All-Energy Women's Speed Mentoring Event

<http://www.all-energy.co.uk/en/Whats-On/Associated-Events-2017/Thursday-11th-May/1200-1400-All-Energy-Womens-Speed-Mentoring-Event/>

The All-Energy 2017 Conference Programme

Welcome to the All-Energy 2017 Conference.

All sessions are **free** to attend without the need to pre-book.

The Lomond Auditorium, Alsh, Boisdale, Hall 1, Carron, Dochart, Leven and Morar/Ness conference rooms are all located across the concourse from the exhibition hall and Gala and Forth are located in the SEC Armadillo. The Seminar Theatres are located in the exhibition hall and the 'Meet the Buyers' Share Fair is on the mezzanine floor overlooking the SEC's central concourse between the exhibition hall and the conference rooms.

Main Conference Programme

Wednesday, 10 May

Lomond Auditorium

Opening plenary

Lomond Auditorium

9:00-10:30

Chair: Prof Sir Jim McDonald, Principal and Vice Chancellor, University of Strathclyde

- Civic welcome on behalf of the City of Glasgow: **Deacon Convener Keith Brown OBE**
- **Rt Hon Nicola Sturgeon MSP**, The First Minister of Scotland
- **Keith Anderson**, Chief Corporate Officer, ScottishPower and Chief Executive Officer, ScottishPower Renewables
- **George Gillespie**, Acting Executive Director of Land and Environmental Services, Glasgow City Council
- **Prof Jim Watson**, Director, UK Energy Research Centre (UKERC)
- **Julian Leslie**, Head of Electricity Network Development, National Grid

Offshore Wind Track

(Lomond Auditorium)

Sponsored by



Offshore wind 1: Panel: LCOE of offshore wind and 'Offshore Wind Market Forecast'

Offshore Wind Theatre (Lomond Auditorium)

11:00-12:30

Chair: Patricia Hawthorn, Partner, Shepherd and Wedderburn

- Cost reduction and industrialisation - **Jonathan Cole**, Managing Director, Offshore Iberdrola Renewables Offshore Wind Division
- Industrial strategy – developing a sector deal for offshore wind - **Benj Sykes**, UK Country Manager, DONG Energy Wind Power
- Q&A and panel discussion involving:
 - **Huub den Rooijen**, Director – Energy, Minerals & Infrastructure, The Crown Estate
 - **Andrew Jamieson**, CEO, Offshore Renewable Energy Catapult
 - **Matthew Knight**, Director of Energy Strategy and Government Affairs, Siemens
- 'Offshore wind market forecast' - **Andrew Reid**, President of Consulting, Westwood Global Energy Group

Offshore wind 2: The importance of the supply chain

Offshore Wind Theatre (Lomond Auditorium)

14:00-15:30

Chair: Simon Gray, Chief Executive, EEEGR: East of England Energy Group

- Supply chain optimisation for the offshore wind sector – **Prof Dylan Jones**, Professor of Operational Research, University of Portsmouth
- Elevator pitches by experts taking part in the “Meet The Buyers” Share Fair, including:
 - Neart na Gaoithe - **David Sweenie**, Offshore Manager – Scotland, Mainstream Renewable Power
 - Making it big in wind - how SE support companies in offshore wind - **Isla Robb**, Offshore Wind Lead, Scottish Enterprise
- The offshore wind opportunity for oil and gas companies - **Alan Duncan**, Senior Associate, BVG Associates
- Q&A and panel discussion involving:
 - **Charlotte Taylor**, Energy Specialist, Scottish Enterprise
 - **Bruce Clements**, Head of Sales, CWind

Offshore wind 3: Offshore wind trajectory

Offshore Wind Theatre (Lomond Auditorium)

16:00-17:30

Chair: Neil Douglas, Director, BVG Associates

- Competitive wind auctions 2016-17 – what can we learn about the new offshore wind LCOE trajectory? – **Neil Douglas**, Director, BVG Associates
 - Gusts of change: How effective policy is catalysing a booming offshore wind sector – **Kristian Petrick**, Operating Agent, IEA-RETD
 - A path to low risk LCoE of £75/MWh for UK offshore wind - **Inès Tunga**, IDCORE Research Engineer, Energy Technologies Institute (ETI)
 - Offshore wind in Taiwan, **Andy Oldroyd**, Managing Director, Oldbaum Services
 - Critical mass: Outlook for offshore wind in the U.S.– **Sebastian Chivers**, CEO, The Renewables Consulting Group
 - Q&A and panel discussion
-

Marine Renewables Track (Carron)

Marine renewables 1: Panel: The tidal power LCOE race – who will win, why and by when?

Carron

11:00-12:30

Chair: Tim Cornelius, Chairman, MeyGen

The industry’s leading stream, lagoon and barrage developers will debate which projects will be able to compete with Pot 2 technologies and by when, in an unscripted debate format that will encourage audience participation and involvement

- Floating - **Andrew Scott**, CEO, Scotrenewables Tidal Power
- Open centre - **Brendan Corr**, Chief Commercial Officer, OpenHydro
- Tidal lagoon - **Andrew Manley**, International Director, Tidal Lagoon Power
- Tidal barrage - **Bob Long**, Managing Director, River Wyre Tidal Hydro Energy Plant
- Modular small turbines - **Niels Alexander Lange**, Managing Director, Schottel Hydro
- Second generation rotors - **Hans van Breugel**, CEO, Tocardo
- Horizontal axis turbines – **David Collier**, Project Manager, MeyGen
- Horizontal axis turbines - **Drew Blaxland**, Director of Turbine and Engineering Services, Atlantis Resources
- Q&A and panel discussion

Award of The Society for Underwater Technology Lennard-Senior Prize

Prof John Sharp, Chairman of SUT’s Marine Renewable Energies Committee

Marine renewables 2: Panel: Marine energy supply chain opportunity

Organised by Offshore Renewable Energy Catapult

Carron

14:00-15:30

Chair: Simon Cheeseman, Sector Lead, Wave & Tidal Energy, Offshore Renewable Energy Catapult

- **Arthur Burrows**, Business Development Manager, Siemens Subsea Connectors
- **James Young**, Chief Technology Officer, JDR Cable Systems
- **Steven Nauwelaerts**, Co-Founder & CEO, Laminaria
- **Dave Rigg**, Head of Operations, Atlantis Resources
- **Simon Forrest**, CEO, Nova Innovation
- **Paul Weston**, Marine & Energy Development Manager, A&P Group

Marine renewables 3: The All-Energy 2017 Marine Renewable Energy Investment Challenge

Carron

16:00-17:30

Chair: Tim Cornelius, CEO, Atlantis Resources

All-Energy 2017 hosts the 2017 Marine Renewable Energy Investment Challenge which was open for pitches from developers of technology, projects or services for marine renewable energy including tidal stream, tidal barrage, tidal lagoon, wave, OTEC, salinity gradient and floating offshore wind.

The prize

Thanks to an initiative master-minded by Tim Cornelius, CEO of Atlantis Resources, the winner of the Investment Challenge will benefit from up to £10,000-worth of invaluable advice from lawyers, stockbrokers, investment bankers, accountants communications experts and marketeers.

Everyone needs help shaping their plans ready for the investment community. For developers of technology, projects or services, getting the right expert advice can make all the difference when it comes to overcoming the 'valley of death' between innovation and commercialisation. "There may only be one winner, but I hope that the advice and feedback given during the session will help many others there" - Tim Cornelius

Five short-listed candidates, who may be individuals or representing companies or projects, have the opportunity today to give a 10-minute elevator pitch in front of our expert panellists. Each of the candidates will then receive five minutes of immediate feedback, and the winner will benefit from a specially tailored workshop, sponsored by Atlantis, with one aim – to help him, or her, raise funds.

The panel

- **Jock Maxwell Macdonald**, Director, Peel Hunt
- **Nick Stamp**, Director, Macquarie Capital
- **Cameron Smith**, Partner, Ashurst
- **Ben Brewerton**, Director, FTI Consulting
- **Jonnie Cox**, Managing Director, Cantor Fitzgerald

Sustainable & Smart Cities Track

(Alsh 2)

Sponsored by



Sustainable cities and the Great Debate: 'Aspiration versus implementation... translating policy into projects?'

Organised by: Shepherd and Wedderburn

Sustainable and Smart Cities Theatre (Alsh 2)

11:00-12:30

Chair: Clare Foster, Partner, Banking and Finance and Head of Clean Energy, Shepherd and Wedderburn

- **Iain Watson**, Director, UK Green Investment Bank
- **Vivienne Cockburn**, Director of Corporate Services and Low Carbon, Scottish Futures Trust
- **Leo Bedford**, Director & Head of Structural Funds, Amber Infrastructure
- **Jonathan Guthrie**, Director for Strategic Public Partnerships, Robertson Group
- **Gregor Paterson-Jones**, Expert Advisor
- **Mark Apsey**, Technical Services Director, Ameresco

- Q&A and panel discussion

Sustainable cities: Energy efficiency and retrofit

Sustainable and Smart Cities Theatre (Alsh 2)

14:00-15:30

Chair: Prof Karen Turner, Director of the Centre for Energy Policy, University of Strathclyde

- Scotland's Energy Efficiency Programme - transforming the delivery of energy efficiency programmes in Scotland – **Andy Robinson**, Head of HEEPS Area Based Schemes - Better Home Division & **Ross Loveridge**, Head of Industry & Heat Regulation and Emissions Trading, Scottish Government
- Energy efficiency in Scotland: a summary of key findings from Energy Saving Trust and Scottish Enterprise market research - **Ian Cuthbert**, Programme Manager - Sustainable Energy Supply Chain, Energy Saving Trust
- Towards the delivery of a national residential energy efficiency programme - **Chris Jofeh**, Director & Global Buildings Retrofit Leader, Arup
- A paradigm shift - the multiple benefits of energy efficiency
 - A multiple benefits perspective on energy efficiency – **Prof Karen Turner**, Director of the Centre for Energy Policy, University of Strathclyde
 - Impacts of energy efficiency improvements in low income households – **Gioele Figus**, Research Assistant, Centre for Energy Policy, University of Strathclyde
- Q&A and panel discussion

Sustainable and smart cities: Challenges, opportunities and solutions

Sustainable and Smart Cities Theatre (Alsh 2)

16:00-17:30

Chair: Sue Kearns, Deputy Director of Energy Deployment, Scottish Government

- Showcasing smart city innovation across the UK core cities – **Dr Colin Birchenhall**, Chief Technology Officer, Digital Office for Local Government in Scotland
- Scotland's Smart Cities - **Graham Pinfield**, Smart Perth Project Officer, Perth & Kinross Council representing the Scottish Cities Alliance
- Different definitions of sustainability – **Richard Bellingham**, Director, Institute for Future Cities, University of Strathclyde
- RUGGEDISED a smart city lighthouse project: An introduction – **Gavin Slater**, Group Manager - City Energy & RUGGEDISED, Glasgow City Council
- Around the world with The Carbon Trust - **Paul Wedgwood**, General Manager, Carbon Trust Scotland
- Sustainability of de-centralised energy systems in a citywide environment – **Dr Vinay Mulgundmath**, Business Development Manager, Doosan Babcock
- A smart, whole-house approach to energy - **Rob Honeyman**, Policy Advisor, Sustainable Energy Association
- Q&A and panel discussion

Innovate UK: Infrastructure Systems Innovation Showcase (Hall 1)

Innovate UK: Connecting innovators to the market (Part 1)

Organised by: Innovate UK

Hall 1

11:00-12:30

Chair: Christian Inglis, Senior Innovation Lead, Growth and Scale, Innovate UK

- Introduction and context - **Ian Meikle**, Director - Infrastructure Systems, Innovate UK

Pitches from companies looking for pilot customers:

- **Powervault** – We are a home electricity storage device manufacturer.
- **Auraventi Ltd.** – Highly localised forecasting for specific locations using advanced statistics and machine learning techniques to datasets from existing weather observations and forecasts.
- **Topolytics** – Topolytics award-winning software uses mapping and machine learning to make data on commercial waste and emissions visible, verifiable and valuable.
- **Water Powered Technologies Ltd.** - Our Company has just patented and will launch commercially a very large scale zero energy pump for pumped hydro power and tidal lagoon power sectors- potentially revolutionary for both sectors as well as helping transfer water to mitigate drought.

- **ICAX Ltd.** – Decarbonised heat sharing infrastructure. Joined-up heating and cooling network without combustion: Balanced Energy Network responding to electricity price fluctuations to store and release heat and cold as needed by recycling heat efficiently between buildings.
- **VRM Tech** – Platform for local authorities to bring assets online and show them via dashboards. District Heat Network dashboards for Camden Council help to monitor the assets in realtime and alert workers when action needs to be taken.
- **Stickyworld Ltd.** – We're looking to introduce energy and infrastructure companies to an all-in-one ideas management platform for crowdsourcing ideas, consulting stakeholders and educating customers.
- **Engas UK Ltd** – Engas UK is selling portable CO2 capturing units to purify raw biogas produced from organic waste, into bio-CNG fuel for green-power generation, and refuelling of vehicles.
- **Ricardo Energy & Environment** – To promote the recently completed EDIS project, which uses a novel data analysis approach that is not based on modelling to identify energy use patterns at individual building level to target interventions to improve energy efficiency.
- **Aceleron** – Aceleron produces low-cost remanufactured battery packs using used batteries from the automotive and electronics sectors. We have developed the technology to quickly process batteries for reuse.
- **ACT Blade Ltd.** – ACT Blade develops the lightest and most controllable wind turbine blade: its innovative design enables longer blades, increasing energy production and reducing the cost of energy.
- **The River Cycleway Consortium** – To discuss the design of a new state-of-the-art, traffic-free bicycle and pedestrian pathway through the heart of London for commuters, city dwellers and visitors called the Thames Deckway.
- **Jee Ltd** is offering to provide the subsea infrastructure for tidal energy developments. Called Excalibur, it comprises support structures, together with array and export cabling – everything you need offshore in order to plug-and-play tidal energy converters.

Innovate UK: Lunchtime networking event

Organised by: Innovate UK

Hall 1

12:30-14:00

What does it take to innovate? Part of the process is expanding your network to find new customers, collaborators, champions and investors. Join us and meet your peers, potential customers and interested parties in this informal session where there will be a number of poseur tables bringing to life the companies presenting, the innovation landscape audience, and presence from Innovate UK and its family of Catapults, KTN, and EEN.

Innovate UK: Connecting innovators to the market (Part 2)

Organised by: Innovate UK

Hall 1

14:00-15:30

Chair: Christian Inglis, Senior Innovation Lead, Growth and Scale, Innovate UK

- Innovate UK growth and scale activities update - **Christian Inglis**, Senior Innovation Lead, Growth and Scale, Innovate UK

Pitches from companies looking for investment, partners and expertise:

- **Senergy Innovations Ltd** - Senergy design and manufacture building integrated polymer solar thermal panels that will deliver the next generation of reliable, affordable and emission free solar water heating and cooling
- **Gravitricity Ltd** - Mechanical Energy Storage technology, using gravitational potential to store energy. Developing an industrial consortium including Mining Equipment OEMs, Power Electronics, and Shaft Sinking equipment manufacturers. Raising equity late 2017.
- **CoControl** - CoControl is the UK's first socially focused connected homes technology, providing savings to tenants and advanced levels of property insight for social landlords. At the event we want to publicise that we are seeking a second round of equity investment to build on our Innovate UK projects.
- **Lynkeos Technology Ltd.** - Lynkeos Technology Ltd. specialise in Muon Tomography. This innovative 3D imaging technique uses naturally-occurring background radiation in the form of cosmic-ray muons to image the contents of UK legacy nuclear waste containers.
- **Tidal Harness Ltd.** - Tidal Harness builds disruptive, single moving part turbines for harnessing energy from tidal streams. Our vision is to make tidal energy more reliable and cost effective than offshore wind with correspondingly greater return-on-investment.
- **SENSE Offshore Ltd.** - Technology development and consultancy with innovation in wind turbine installation and maintenance systems.
- **Wideblue** - Wideblue develop new optical products and have two innovative new products inspection under collaborative development for the energy sector.
- **Extreme Low Energy** - Extreme Low Energy (ELe) is a specialist designer and manufacturer of DC power infrastructure technology, low energy ICT solutions and remote powered buildings.

- **Energy SRS Ltd.** - Energy SRS is developing a zero-emission energy storage technology, this concept has resulted in a project that is grant funded by Innovate UK and involves the participation of four other UK companies and the University of Bristol.
- **Swift TG Energy** - Swift have developed an actively pitched VAWT for use in turbulent areas. This technology will transform wind harvesting in smart cities.
- **Frontier Technical Ltd.** - Engineering consultancy, R&D project monitoring, and technology delivery with innovation in modular floating platform for offshore wind.
- **Perceptual Robotics Ltd.** - At Perceptual Robotics our philosophy is to creatively maximise the use of autonomy and intelligence in robots. The first product under development at Perceptual Robotics is Dhalion, an industry leading autonomous aerial platform for wind turbine inspection. Dhalion aims to bring full end to end inspection capabilities to the market, from data acquisition to high confidence defect identification.

Clean and Cool entrepreneurs mission session – led by **Guy Pattison**, Long Run Works and **Andrew Wordsworth**, Managing Director, Sustainable Ventures

Innovate UK: Complex systems

Organised by: *Innovate UK*

Hall 1

16:00-17:30

The ambition to reduce emissions whilst maintaining energy affordability and security in our supply, distribution and consumption of energy is one of our defining challenges for the early 21st Century. But what does it take to deliver smart and flexible future infrastructure systems greater than the sum of the individual system parts, and how might decisions made in the energy system affect urban and transport systems and vice versa? What are the requirements of enabling technologies to help us achieve common and potentially competing goals across systems?

Innovate UK and KTN have recently been working in the area of integrated complex systems to build the community and approach as to how we should focus in this area.

Integrated complex systems are a core component of Future Infrastructure Systems that will enable much greater intelligence, user interaction, active management and control in flexibly managing supply and demand of various systems resulting in a smart, resilient and sustainable infrastructure. Following on from an inaugural event in Greenwich in March through this KTN led session we will discuss the issues and innovation opportunities arising from a systems of systems approach.

Speakers include:

- **Ed Macfarlane**, Principal Consultant, Abbott Risk Consulting
- **Ian Reid**, CEO, CENSIS
- **Chris Bagley**, Head of Infrastructure, Knowledge Transfer Network

Boisdale

Farming/ landowning community: renewable and low carbon energy solutions

Boisdale

11:00-12:30

Chair: **Thomas McMillan**, Director - Energy Rural, Savills

- Adding value to farm scale renewable energy production - **Jim Campbell**, Environment Group Team Leader & Project Manager, SAC Consulting
- Proposed change of rules for AD feedstocks under FIT and RHI - **John Farquhar**, Senior Renewables Consultant, SAC Consulting
- Clean energy, increased efficiency and renewable heat in one fell swoop - **Robert Emrich**, Director of Sales and Market Development, ElectraTherm
- Novel smart systems for farm based renewable/low carbon energy solutions - **Robert Shearlaw**, Executive Chairman and Co-Founder, WHRL Solutions
- Generate a more energy efficient future - **Roddy McLean**, Director of Agriculture, Royal Bank of Scotland
- Q&A and panel discussion involving:
 - **Gordon Davidson**, News & Renewables Editor, The Scottish Farmer
 - **Keith Hounsell**, Managing Director, Green Acorn

H2FC SUPERGEN Hub 'Lunch & Learn': Three evidence-based white papers on the impact of hydrogen and fuel cell technologies

Boisdale

13:00-14:00

Chair: Prof John Irvine, University of St Andrews & Co-director of H2FC SUPERGEN HUB

Electrification of the UK energy system has been identified as the principal decarbonisation strategy and has been studied extensively. In contrast, hydrogen technologies and systems have only been projected to see limited uptake in some future scenarios and have not been extensively examined, in part due to anticipated higher costs and infrastructural barriers relative to some other options. But as hydrogen technology matures, the cost projections and other performance indicators have become more favourable; while in contrast, the severe technical challenges of an all-electric future are becoming apparent with increasing renewables and electric heating. Hydrogen and fuel cells have the potential to make a significant contribution to future decarbonisation in the UK, even extending to powering most vehicles, heating most homes and industries, and supporting renewable electricity generation. These disruptive technologies also offer some significant advantages for consumers, when compared with electric alternatives.

The H2FC SUPERGEN Hub has commissioned three evidence based White Papers, in addition to a previous one published in 2014 on *The Role of hydrogen in Decarbonising Heat*, to inform key stakeholders, especially policy makers on:

- The role of hydrogen and fuel cells in the future energy systems - **Dr Paul Dodds**, Senior Lecturer in Energy Systems, UCL Energy Institute
- The economic impacts of hydrogen and fuel cells in the UK - **Prof Karen Turner**, Director of the Centre for Energy Policy, University of Strathclyde
- The role of hydrogen and fuel cells in enabling energy security in the UK – **Prof Robert Steinberger-Wilckens**, Chair Fuel Cell & Hydrogen Research, University of Birmingham

Panel: Hydrogen's role in the future energy system: Spend, scale and timetable?

In association with SHFCA

Boisdale

14:00-15:30

Chair: Nigel Holmes, Chief Executive, Scottish Hydrogen & Fuel Cell Association

- **Dr Paul Dodds**, Senior Lecturer in Energy Systems, UCL Energy Institute
- **Ian Ellerington**, Head of Innovation Delivery, Department for Business, Energy and Industrial Strategy (BEIS)
- **Stuart Greig**, Head of Subsurface Energy Systems, Scottish Government
- **Prof John Irvine**, Professor of Chemistry, University of St Andrews and Co-Director, H2FC SUPERGEN
- **Dr Graham Cooley**, CEO, ITM Power
- **Yasa Ratnayake**, Team Leader (Partnerships & Funding), Aberdeen City Council
- **Fiona Riddoch**, Energy Efficiency & Policy Consultant
- Q&A and panel discussion

Offshore renewable energy in Scottish waters – planning, licensing and science for the present and future

Organised by: Marine Scotland

Boisdale

16:00-17:30

Marine Scotland is the planning and licensing authority for Scotland's Seas. This session will give consideration to recent developments in strategic planning, project licensing, and the scientific research programme to support the deployment of offshore renewables around Scotland. It will focus on:

- Planning for offshore wind, wave, tidal and floating offshore wind in Scottish waters;
- Licensing and the post-consent landscape;
- Latest developments and future plans for scientific research.

Chair: David Palmer, Acting Head of Planning and Policy, Marine Scotland

Speakers:

- **David Pratt**, Marine Planning & Assessment Specialist, Marine Scotland
- **Dr Ian Davies**, Renewables and Energy Programme Manager, Marine Scotland Science
- **Jim McKie**, Head of Licensing Operations Team, Marine Scotland

Dochart

Onshore wind 1: Onshore wind in Scotland – Scottish onshore wind policy update and panel discussion of turbine size in Scotland's landscape

Dochart

11:00-12:30

This panel will open with an overview from the Scottish Government on their onshore wind policy before moving into a panel discussion and audience Q&A.

Chair: Prof Peter Clive, Senior Scientist, Wood Group-clean energy (formerly SgurrEnergy)

- Scottish Government's onshore wind policy - **Debbie Kessell**, Onshore Wind Policy Advisor, Scottish Government
- Followed by panel discussion "*Turbine size in Scotland's landscape.*"
 - **Brendan Turvey**, Policy Manager – Renewables, Scottish Natural Heritage
 - **Paul Macrae**, Associate Landscape Planner, LUC
 - **Marc van Grieken**, Director, MVGLA
 - **Joe Somerville**, Principal Consultant, RSK Environment
 - **James Welch**, Director, Optimised Environments (OPEN)
 - **David Bell**, Director, JLL
 - **Jim Knight**, Lead Officer Natural Heritage, Planning and Regulatory Services, Scottish Borders Council
 - **Carol Anderson**, Landscape Architect, Carol Anderson Landscape Associates

Onshore wind 2: Making the most of your assets - wind farm monitoring, control and optimisation

Dochart

14:00-15:30

This session will have a technical emphasis around wind farm and wind turbine monitoring, control and optimisation, taking into account a variety of perspectives and commercial arrangements. Presenters have been pulled from academic, OEM, ISP, and consultancy backgrounds,

Chair: Dr Joanna McKenzie, Wind Analysis Team Leader, SSE

- Reducing the Levelised Cost of Energy (LCoE) on wind energy converters through an adaptive control & global minimisation of system losses - **Juan Pablo Echenique**, Research Associate, University of Edinburgh
- System services by wind power plants - Technical capabilities and opportunities - **Konstantinos Pierros**, Sales - Grid Integration Engineer, ENERCON
- Making the most of your assets - wind farm monitoring, control and optimisation – **Dr David Robb**, Control Systems Director, Wood Group-clean energy (formerly SgurrEnergy)
- ISPs in the UK – Technical and financial advantages of an alternative service approach - **Billy Stevenson**, Managing Director, Deutsche Windtechnik
- Holistic analysis of turbine performance indicators - **Iain Dinwoodie**, Senior Asset Performance Engineer, Natural Power
- Q&A and panel discussion

(Onshore Wind 3: Challenges & opportunities commences Thursday 11th May from 15:00-16:30, in Alsh 2)

Energy storage 1: Making energy storage happen

Dochart

16:00-17:30

Chair: Paul Minto, Partner, Energy, HBJ Gateley

- Power-to-gas energy storage: Storing renewable energy in the gas grid – **Dr Graham Cooley**, CEO, ITM Power
- Match made in heaven? The opportunities and risks of co-locating storage on renewables sites - **Bob Hodgetts**, Partner, Everoze Partners
- Commercial models for battery storage – **Angus Widdowson**, Business Development Manager, smartestenergy
- Deploying the first grid-connected Tesla Powerpacks - **Harry Vickers**, Business Development Manager, Camborne Energy Storage & **Paul Lukehurst**, Managing Director, Poweri Services
- Lessons learned from delivering a UK storage portfolio at scale – **Chris Miles**, Business Development Director, Anesco
- Q&A and panel discussion

(Energy storage 2 & 3 commence on Thursday 11th May in Dochart, from 11:00)

Leven

Finance & funding: The farther back you can look, the farther forward you are likely to see

Leven

11:00 - 12:30

Chair: **Andrew Smith, Head of Investment, DP Energy**

- **Annicka Wänn**, Senior Project Engineer, Exceedence
- **Matthew Clayton**, Managing Director, Thrive Renewables
- **Neil Douglas**, Director, BVG Associates
- **Matthew Colls**, Director, Prevailing
- **Richard Saint**, Head of Energy, Infrastructure & Industrials, Royal Bank of Scotland
- Q&A and panel discussion

International cooperation on renewable energy projects in Taiwan

Organised by: *National Energy Program-Phase II (NEP-II) Program Office*

Leven

13:30-17:00

The symposium “International Cooperation on Renewable Energy Projects in Taiwan” is to display the research achievements of National Energy Program Phase II (NEP-II), to optimize the benefits of cross-border or industry-academia cooperation and also to accelerate investments of renewable energy.

13:30 **Registration**

14:00 **Welcome remarks**

Jane F.C. Hsu, Director General, Taipei Representative Office in the U.K. Edinburgh Office

14:04 **Introduction of National Energy Program in Taiwan**

Dr Kuang-Chong Wu, CEO, National Energy Program-Phase II (NEP-II)

14:10 **Research on green energy and environment at ITRI**

Dr Chia Hao Hsu, Researcher, Green Energy and Environment Research Laboratories, Industrial Technology Research Institute (ITRI)

14:19 **Research and application on green energy technologies at INER**

Wen Song Hwang, Research Fellow, Institute of Nuclear Energy Research (INER)

14:28 **The development of offshore wind power and marine energy in Taiwan**

Mao Hsiung Chiang, Professor and Chairman, Department of Engineering Science and Ocean Engineering, National Taiwan University

14:37 **Building digital utility emerging smart microgrid systems**

Yen Haw Chen, Associate Research Fellow, Taiwan Institute of Economic Research (TIER), Research Division 1, Deputy Director

15:01 **Ultrafast rechargeable aluminium battery**

Kuang-Yao Chen, Research Fellow, Green Energy and Environment Research Laboratories, Industrial Technology Research Institute (ITRI)

15:10 **DC outer-rotor ceiling fan**

Dr Chia-Hao Hsu, Researcher, Green Energy and Environment Research Laboratories, Industrial Technology Research Institute (ITRI)

15:19 **KYMCO and its REX engine: possible applications & cooperating advantages**

Frank Liang, Deputy Chief, KYMCO

15:28 **Q&A, coffee break & networking**

Morar/Ness

TPOcean: Ocean energy networking lunch

Morar/Ness

11:00-13:00

TPOcean (www.etipocean.eu/) will host a networking lunch for ocean energy companies and university students considering a new career in this exciting, emerging sector. Students will have the chance meet project developers, technology developers, supply chain companies, researchers and many more. Company representatives will get to meet the next generation of ocean energy professionals, from a great range of backgrounds, and TPOcean staff will be on hand to make introductions. Come along to meet your future employer or employee and enjoy a complimentary lunch in an informal environment.

Bioenergy 1: Biomass & biogas

Morar/Ness

14:00-15:30

Chair: Richard Gueterbock, Marketing Director, Clearfleau

- An introduction to the circular economy and bioenergy: Featuring industrial projects and food/drink - **Richard Gueterbock**, Marketing Director, Clearfleau
- Biomass at high heat demand sites– Right for your site? – **Hayley Myles**, Chief Consultant, Black & Veatch
- Biomethane from dairy sector processing residues- **Gordon Archer**, Chairman, Lake District Biogas
- Biogas/biomass as part of the energy mix on a small distillery site – **Uisdean Fraser**, Managing Director, Synergie Environ
- If Sweden can - You can! – **Bengt-Erik Löfgren**, Co-ordinator, Swedish Pellet Association / ÄFAB
- Q&A and panel discussion

Bioenergy 2: Biomass, biogas & biofuel

Morar/Ness

16:00-17:30

Chair: Janine Kellett, Head of Emerging Technologies, Energy and Climate Change Directorate, Scottish Government

- From biomass to energy – Computer aided engineering solutions - **Dr Nico Bianco**, Applications Engineering Manager, CMCL Innovations
- The BIOSURF Project– **Stefano Proietti**, Project Manager, Institute of Studies for the Integration of Systems (ISINNOVA)
- Converting biogas into low carbon commercial vehicle fuel – **Andrew Winship**, Director, Aker Associates
- Teesside as a bioenergy hub
 - Capturing CO₂ from an existing biomass power station – **Bill Buschle**, Post-Doctoral Research Associate, University of Edinburgh
 - Case Study: Duranta Teesside Merchant AD/biogas Plant, Middlesbrough – **Tom Ilett**, Senior Engineer – Process Engineering and Process Safety, SLR Consulting and **Simon Crook**, Operating Partner, Greensphere Capital
 - Achieving ‘negative carbon’ through carbon dioxide reuse as a bolt-on value generator for bioenergy – **Tim Dumenil**, Creative Spirit & Energy Consultant, Pale Blue Dot Energy
- Are we nearly there yet? Update on the biorefinery roadmap for Scotland – **Dr Paul Hudman**, Business Development Manager, Industrial Biotechnology Innovation Centre (IBioIC)
- Q&A and panel discussion

Gala

Energy Systems

Gala

11:00-12:30

Chair: Dr Paul Dodds, Senior Lecturer in Energy Systems, UCL Energy Institute

- Energy system scenarios for the UK – **Dr Paul Dodds**, Senior Lecturer in Energy Systems, UCL Energy Institute
- Zero Carbon Britain - Rethinking the future - **Paul Allen**, Project Coordinator Zero Carbon Britain, Centre for Alternative Technology Charity
- Resilience and flexibility across the energy system – balancing supply and demand – **Dr Keith MacLean OBE**, Managing Director, Providence Policy
- Transitioning to a low carbon energy system: network transition challenges - **Dr Liam Lidstone**, Strategy Manager – Energy Storage and Distribution, Energy Technologies Institute (ETI)
- Enabling distribution-level energy transitions to decarbonised heat - **Graeme Hawker**, Research Associate, EEE Department, University of Strathclyde
- Flexible electricity demand: potential and barriers to realisation - **Prof Keith Bell**, ScottishPower Professor of Smart Grids, University of Strathclyde

- Applying a system of systems approach (SOSA) to reduce risks and costs in developing future GB energy systems - **Daniel Mee**, Energy Systems Architect, Energy Systems Catapult
- Towards an integrated energy strategy for Scotland: examining the risks and opportunities - **Dr Mark Winkler**, Chancellor's Research Fellow, University of Edinburgh
- Q&A and panel discussion

The Czech Republic: Revolution in battery storage and renewable and low carbon energy solutions

Gala

14:00-15:30

Chair: Ing Martin Macourek, Director UK/Ireland Operations, CzechTrade United Kingdom

Battery storage & smart grid

- Introduction: Czech innovation in batteries – patented technologies
- Own lithium iron (LiFePo4) battery – **Petr Kelar**, Sales Manager, Fitcraft Energy
 - Case study 1: Pop up solar and wind farm in Wales for energy storage solutions
- Industrial automation, intelligent buildings, smart grid - **Jaromír Klaban**, Member of the Board, Teco and **Petr Ovčáček**, Deputy Commercial Director, Teco
 - Case study 2: Full smart control of energy consumption in your house (a fully integrated solution) -

Renewable and low carbon energy solutions

- Smart mobile renewable energy – options and advantages – **Tom Morley**, Managing Director, Greenpower Technology
- Post RHI reality: How to make most of your biomass (mobile biomass rooms) - **Tom Morley**, Managing Director, Greenpower Technology
 - Case study 3: Working with oil & gas giants in the field of mobile renewable energy (Total)

Grid 1: Future power system - impacts and opportunities from transformation

Gala

16:00-17:30

Chair: Eric Brown, Head of Innovation, Energy Systems Catapult

- **Peter Capener**, Executive Director, Bath & West Community Energy
- **Eric Brown**, Head of Innovation, Energy Systems Catapult
- **Olivia Carpenter**, Senior Consultant Engineer, Ricardo Energy & Environment
- **Philip Lawton**, Head of Practice, Power Systems, Energy Systems Catapult
- **Aimee Betts-Charalambous**, Programme Manager – SmarterUK and IoT, techUK
- Q&A and panel discussion

(Grid 2 & 3 will commence Thursday 11th May in Morar/Ness, from 11:00am)

Thursday, 11 May

Lomond Auditorium

Day 2 Plenary: The effects of Brexit on the renewable and low carbon energy sectors

Lomond Auditorium

09:30-10:30

Chair: Dr Nina Skorupska CBE, CEO, Renewable Energy Association (REA)

- **Scene setting address:** Brexit horizons for Scottish and UK energy policy: Taking back control? – **Prof Karen Turner**, Director of the Centre for Energy Policy, University of Strathclyde – co-authors: **Prof Paul Cairney**, University of Stirling; **Prof Nicola McEwen**, University of Edinburgh; **Prof Aileen McHarg**, University of Strathclyde; and **David Wilson**, University of Strathclyde
- Followed by **Q&A and panel discussion** involving:
 - **Matthew Knight**, Director of Energy Strategy and Government Affairs, Siemens
 - **Clare Foster**, Partner, Banking and Finance and Head of Clean Energy, Shepherd and Wedderburn
 - **Martin Wright**, Managing Director, Aurora Ventures & Chairman, REA
 - **Nicola McEwen**, Professor of Territorial Politics and Associate Director, ESRC Centre on Constitutional Change

- **Aileen McHarg**, Professor of Public Law, University of Strathclyde
-

Offshore Wind Track (Lomond Auditorium)

Sponsored by



Offshore wind 4: Floating wind

Held in association with DNV GL

Offshore Wind Theatre (Lomond Auditorium)

11:00-12:30

Chair: **Johan Slätte**, Senior Consultant, DNV GL

- Introduction and revision of DNV GL standard for floating wind turbine structures - **Johan Slätte**, Senior Consultant, DNV GL
- Going further out to sea to harvest more wind: floating offshore wind - **Ole Stobbe**, Business Development Manager, Northern Europe, Ideol
- Hywind Scotland Pilot Park - **Halvor Hoen Hersleth**, Operations Manager – Hywind Scotland Pilot Park, Statoil
- Upscaling TLPWIND® floating technology – **Juan Amate López**, Head of Offshore Technology, Ibedrola Ingeniería y Construcción
- ~~Revision of DNV GL standard for floating wind turbine structures – **Anne Lene Hopstad**, Principal Engineer, DNV GL~~
- Floating wind - unlocking the innovative foundations for deeper waters – **Úna Brosnan**, Business and Strategy Development Manager, Atkins
- Preparing for commercial scale floating offshore wind farms – **Jan Matthiesen**, Director, Policy & Innovation, Carbon Trust
- Q&A and panel discussion involving:
 - **Henrik Baltscheffsky**, CEO, Hexicon
 - **Allan MacAskill**, Director, Kincardine Offshore Windfarm Project
 - **David Stevenson**, Head of Large Scale Renewables, Scottish Government

Offshore wind 5: Innovation

Offshore Wind Theatre (Lomond Auditorium)

13:00-14:30

Chair: **Mike Blanch**, Associate Director, BVG Associates

- Offshore wind innovation landscape - **Mike Blanch**, Associate Director, BVG Associates
- Combining offshore wind and wave power technology – what are the challenges and opportunities? - **Dr Richard Yemm**, Director, Quoceant
- A test of a 500kW kit system in Scotland during 2017/2018 - **David Ainsworth**, Business Development Director, Kite Power Systems
- Multi-rotor devices: what can offshore wind learn from the tidal industry? - **Tim Baker**, Technical Director – Tidal Energy, Black & Veatch
- Can a wind turbine learn to operate itself from experience? - **Dr Maurizio Collu**, Senior Lecturer, Cranfield University
- Q&A and panel discussion

Offshore wind 6: Cabling: the critical link

Offshore Wind Theatre (Lomond Auditorium)

15:00-16:30

Chair: **Elaine Greig**, Director, The Renewables Consulting Group

- Offshore wind claim statistics – cabling issues - **Matthew Yau**, Director, Lloyd Warwick International
- A financiers view of cabling issues - **Gauri Kasbekar-Shah**, Director - Infrastructure & Structured Corporate Financing, Royal Bank of Scotland
- Latest developments in subsea power cables: 66kV and floating wind - **Jeremy Featherstone**, Product Development Director, JDR Cable Systems
- Offshore wind: Reducing the risk of cable failure during installation - **Michael Cowie**, Technical Director, Ecosse Subsea Systems
- Q&A and panel discussion

Marine Renewables Track (Carron)

Marine renewables 4: Focus on wave

Carron

11:00-12:30

Chair: Janine Kellett, Head of Emerging Technologies, Energy and Climate Change Directorate, Scottish Government

- Wave Energy Scotland – driving technology development ahead – **Tim Hurst**, Managing Director, Wave Energy Scotland
- Update on CETO and Carnegie's game changing last 12 months – **Dr Michael Ottaviano**, CEO and Managing Director, Carnegie Clean Energy
- Lost at sea? Examining the effectiveness of UK wave energy innovation policy and recommendations for next steps – **Dr Matthew Hannon**, Chancellor's Fellow of Technology and Innovation, University of Strathclyde
- Ocean Energy's OE35 project update – **Prof Tony Lewis**, Chief Technology Officer, Ocean Energy
- Shoreline ocean energy capture – **William Kingston**, Professor, Trinity College, Dublin
- 'Wave Drive' linear generator design – **Tom Hellier**, Mechanical Engineer, 42 Technology
- Q&A and panel discussion

Marine renewables 5: Marine energy in focus

Carron

13:00-14:30

Chair: John Griffiths, JWG Consulting and Non-Executive Director (Technical responsibilities), EMEC

- Crown Estate Scotland: Update - **John Robertson**, Senior Manager - Energy & Infrastructure, Crown Estate Scotland
- Delivering increased real-world fuel efficiency for UK shipping – **Dr Stuart Bradley**, Strategy Manager - Offshore Renewables, Energy Technologies Institute (ETI)
- An assessment of the cost reduction required to encourage the marine energy market in the UK – **Anna Stegman**, Research Engineer, Energy Technologies Institute (ETI) and IDCORE
- OCEANERA-NET: Collaborative projects and future collaboration opportunities – **Karen Fraser**, Specialist - Energy, Scottish Enterprise
- Reliability in a sea of risk – **Elaine Buck**, Technical Manager, EMEC
- Ocean energy: Next steps to full commercialisation, introducing OPIN – **Jan Reid**, Team Leader, Energy, Scottish Enterprise
- Q&A and panel discussion

Marine renewables 6: Returning to tidal power

Carron

15:00-16:30

Chair: Dr John Sharp, Visiting Professor, Cranfield University and Chairman of the SUT's Marine Renewable Energies Committee

- The benefits and opportunities of collaborative research - an industrial perspective - **Dr Paul Evans**, Consultant, Intertek Energy & Water
- Lessons learnt from MeyGen's Phase 1A tidal energy array in the Pentland Firth – **Andy Baldock**, Director, Sustainable Energy Solutions, Black & Veatch
- Bigger or bust? The future for tidal turbines – **Peter Fraenkel MBE CEng FIMechE FEI**, Director, Fraenkel Wright
- Cost-efficiency potential of operating in low-flow current environments – **Dr Martin Edlund**, CEO, Minesto
- InToTidal: an integrated solution for tidal energy – **Sjoerd Keijser**, Chief Commercial Officer, Tocado International B.V.
- Tidal turbine reliability: The importance of accurate predictions – **Claudio Bittencourt**, Business Development Director, Wave & Tidal, DNV GL
- Q&A and panel discussion

Alsh 2

Hydropower

Organised with the British Hydropower Association

Alsh 2

11:00-12:30

Chair: Simon Hamlyn, Chief Executive, British Hydropower Association

- How to maximise your project in a world without subsidy: A case study - **Sonya Bedford**, Partner and Head of Energy, Stephens Scown
- Yorkshire's largest run of river hydro scheme – **Eur Ing Jonathan Cox**, UK Agent, CINK Hydro Energy
- Tidal lagoons: a scale solution ready to deploy - **Roger Woods**, Development Director, Tidal Lagoon Power
- Advanced pipeline technology for hydro projects – **Mark Stanway**, Director, AquaSpira
- Trends and opportunities - **Kieron Hanson**, Founder and Managing Director, Hydroplan UK & Board Member, British Hydropower Association
- Q&A and panel discussion

The commercial advantages of a joined up energy strategy

Organised by the Scottish Energy Association

Alsh 2

13:00-14:30

Chair: Colin McNaught, Chairman, Scottish Energy Association

- Using data and the cloud to enable energy savings at scale – **Stewart Little**, CEO, IRT Surveys
- Options for large scale energy storage (without using batteries) – **Prof Toby Peters**, Visiting Professor, Heriot-Watt University and Birmingham Energy Institute, the University of Birmingham
- Introducing the Cornwall local energy market: pioneering flexible demand, generation and storage – **Matt Hastings**, Programme Director, Local Energy Systems, Centrica, Distributed Energy and Power
- HIVES© – Hybrid Integrated Variable Energy Systems. A smart approach for smart cities - **Mike McLean**, Sales Director, Swift Technology Group

Onshore wind 3: Challenges and opportunities

Alsh 2

15:00-16:30

This session will highlight the diversity of the issues that arise in such an inter-disciplinary endeavour, with as many wide and varied impacts, as wind energy.

Chair: Alan Mortimer, Director of Innovation, Wood Group-clean energy (formerly SgurrEnergy)

- Evidence of bat mortality at onshore wind farms in the UK: Implications for wind farm developers, asset managers and investors - **Dr Peter Shepherd**, Partner, BSG Ecology
- Aviation mitigation – the “airscape” in a post RO world - **Liz McRobb**, Partner, Shepherd and Wedderburn
- Intellectual property: A proactive approach to managing risk and opportunities - **Sam Bloor**, Patent Attorney, Secerna
- How unmanned aerial vehicle (UAV) inspections and asset management software are revolutionising end of warranty blade campaigns - **Michael McQueenie**, Head of Renewables, Cyberhawk Innovations
- Early results from an Innovate UK cost reduction initiative - **Dr David McMillan**, Lecturer, University of Strathclyde
- Q&A and panel discussion

Low Carbon Heat Track

(Hall 1)

Low carbon heat 1: Setting the scene

Hall 1

11:00-12:30

Chair: Dr Keith MacLean OBE, Managing Director, Providence Policy

- The heat-hiker's guide to the galaxy – **Dr Keith MacLean OBE**, Managing Director, Providence Policy
- Future direction for low carbon heat - **Andy Yuill**, Senior Renewable Heat Manager, Natural Power
- Scottish Government: How heat figures in the draft Energy Strategy document – **Suzanne Le Miere**, Head of Heat Policy & **Ross Loveridge**, Head of Industry & Heat Regulation and Emissions Trading, Scottish Government
- Delivering the Scottish Government's aims
 - Zero Waste Scotland – **Allan Crooks**, Programme Manager, Energy and Low Carbon Heat, Zero Waste Scotland
 - Low Carbon Heat: Supply Chain – **Neil Kitching**, Energy Specialist, Scottish Enterprise
- Gas network innovation and the future of heat – **Matthew Hindle**, Head of Gas, Energy Networks Association
- Ofgem update on the RHI – **Dr Edmund Ward**, Senior Technical Manager, RHI, Ofgem E-Serve

- Q&A and panel discussion

Low carbon heat 2: District heating and smart metering

Hall 1

13:00-14:30

Chair: Morten Duedahl, Business Development Manager, Danish Board of District Heating (DBDH)

Around the world:

- Introduction of Korea District Heating Corporation – **Kyu Hyeon Bae**, Director, New Business Division, Korea District Heating Corporation
- How to implement low temperature district heating – new technologies, pros and cons, examples – **Christian Doczekal**, Head of R&D and Education, Güssing Energy Technologies
- Denmark
 - Case District heating in Copenhagen - Sustainability, planning, economy - **Morten Stobbe**, Vice President, VEKS
 - Short intro to DH in Denmark
 - Carbon targets - How to improve the sustainability of the supplied heat
 - Change from natural gas to district heating
 - Ownership, planning and regulation
 - You can't control and improve, if you don't measure - **Søren Hebsgaard Knudsen**, Country Manager, Kamstrup UK
 - Innovation Catwalk
 - Data collection and visualization - **John Wardlaw**, Sales Manager, ista Energy Solutions
 - Software for optimization and planning of DH system - **Chris Dunham**, UK energyPRO Sales Agent, EMD
 - District heating pipe networks – a full system solution - **Chris Best**, UK Technical Sales Engineer, Logstor UK

Back in the UK:

- Decarbonisation of district heating – **Richard Long**, Head of Business Development, Urban Energy, ENGIE
- District heating in social housing: is it delivering? – **Lauren Salmon**, Researcher (Energy and Sustainability), Changeworks
- Approaching zero: Utilising biomass DH on the road to carbon neutrality – **David Stutchfield**, Sustainability Manager, University of St Andrews and **Mike Cooke**, Project Director, Vital Energi

Quick fire Q&A

Low carbon heat 3: There's more to low carbon heating than district heating

Hall 1

15:00-16:30

Chair: Martin Wright, Director, Minus7

- Geothermal:
 - Exploring geothermal in Cheshire – **Richard Long**, Head of Business Development, Urban Energy, ENGIE and **Cllr David Brown**, Deputy Leader, Cheshire East Council
 - Heat storage in a geothermal context – **David Simons**, Geology Manager, GEOOP
 - Joined-up heating and cooling: beyond CHP district heating – **Edward Thompson**, Director, ICAX
 - Building micro power stations – **Martin Wright**, Director, Minus7
 - Q&A and panel discussion
-

Boisdale

Carbon capture and storage

Boisdale

11:00-12:30

Chair: Stuart Haszeldine OBE, FRSE, C.Geol, Professor of Carbon Capture and Storage, University of Edinburgh

- Introductory remarks on the Scottish Government's draft Energy Strategy - **Stuart Haszeldine OBE, FRSE, C.Geol**, Professor of Carbon Capture and Storage, University of Edinburgh; **Stuart Greig**, Head of Onshore and Subsurface Policy Unit, Scottish Government
- Growing UK CCS from a tiny Acorn – **Alan James**, Managing Director, Pale Blue Dot Energy
- Impact of brine production on CO₂ storage economics - **Emrah Durusut**, Principal Consultant, Element Energy
- Making the macroeconomic case for CCS – **Prof Karen Turner**, Director of the Centre for Energy Policy, University of Strathclyde

- Caledonia Clean Energy Project – **Stephen Kerr**, Project Director, Summit Power
- Capture and electrochemical valorisation of CO₂ in molten carbonates – **Michel Cassir**, Professor and Research Team Leader, Chimie ParisTech, PSL Research University
- Q&A and panel discussion

Energy from waste

Boisdale

13:00-14:30

Chair: John Grady, Partner, Shepherd and Wedderburn

- REnescience – the enzymatic treatment of waste – **Alister Veitch**, Head of Sales (UK), DONG Energy
- Decentralised waste to energy- **Yorik Tisseau**, Bouygues Energies & Services Contracting UK
- Conversion of waste plastics/rubber into a useful oil – **G. John Kuipers**, CEO & Owner, Pyr-Oil Group
- Waste gasification with syngas clean up – reaching commercial demonstration and future prospects in the wider bioenergy sector – **Paul Winstanley**, Project Manager - CCS & Bioenergy, Energy Technologies Institute (ETI)
- Waste water and energy: The next big bang – **John Grady**, Partner, Shepherd and Wedderburn
- Q&A and panel discussion

Energy Storage Track

(Dochart)

Energy storage 2: Growing the energy storage market

Dochart

11:00-12:30

Chair: Nigel Holmes, Chief Executive, Scottish Hydrogen & Fuel Cell Association

- Energy storage - a commercial model: 2017 and beyond - **Philip Bazin**, Environment Team Manager, Triodos Bank
- What does a successful proposition for energy storage in the I&C sector look like? – **Valts Grintals**, Energy Storage Analyst, Delta Energy & Environment
- Balancing supply and demand in the energy system – **Dr Alex Buckman**, Strategy Analyst, Energy Technologies Institute (ETI)
- Dispatchable renewables: The potential of green gas – **Richard Boud**, Technical Director, Black & Veatch
- The Low Carbon Infrastructure Transition Programme (LCITP) – **Veronica Noone**, Team Leader, Energy Strategy, Scottish Enterprise
- Q&A and panel discussion

Energy storage 3: New developments in energy storage

Dochart

13:00-14:30

Chair: Eur Ing Prof Ian Arbon, Senior Partner, Engineered Solutions

- Keeping ahead of the curve in electricity storage - **Anthony Price**, Chairman, The Electricity Storage Network
- New Carbon Trust Innovation Platform - Industry and government working together to realise the long-term case for storage – **Andrew Lever**, Director of Policy and Innovation, Carbon Trust
- Benefits of co-locating energy storage with wind and solar for renewable integration and grid stability – **Neil Durno**, Regional Business Manager, Yunicos
- Development of mechanical storage with all the advantages of pumped hydro without the geographical constraints – Gravitricity Energy Storage - **Miles Franklin**, Lead Engineer, Gravitricity
- Knoydart energy storage project: PMP SLIQ flow battery - **Pas Pallawela**, Chief Technology Officer, Power Migration Partners
- Q&A and panel discussion

Leven

Local Energy

Organised with Local Energy Scotland and Highlands and Islands Enterprise

Leven

11:00-12:30

Chair: Chris Morris, Manager, Local Energy Scotland

Local energy – 2017 and beyond

- Local energy and the Scottish Government Energy Strategy – **Anna Kynaston**, Head of Low Carbon Investment & Public Sector Energy Efficiency & **Christine McKay**, Head of Local Energy Systems, Scottish Government
- Supporting local energy - **Jennifer Ramsay**, Project Manager - Local Energy Challenge Fund, Local Energy Scotland

Energy Systems

- Güssing: A self-sufficient town in Austria - **Christian Doczekal**, Head of R&D and Education, Güssing Energy Technologies
- Leading from the bleeding edge? Development of a practical hydrogen supply chain in Orkney to tackle energy, infrastructure and carbon challenges on land and sea - **Mark Hull**, Head of Innovation, Community Energy Scotland

Shared Ownership

- Shared ownership – making it work - **Laura Nicolson**, Shared Ownership Manager, Local Energy Scotland

Q&A and panel discussion

Solar

Organised with the Solar Trade Association

Leven

13:00-14:30

Chair: **John Forster**, Chairman at Solar Trade Association Scotland & Forster Group

- Unlocking Scotland's solar potential - **Isabella O'Dowd**, Project Analyst, Solar Trade Association
 - Solar within local authority contracts and the new build construction industry - **Chris Clark**, Director, Emtec
 - Building solar homes: How Scotland leads the UK for new homes with solar, but could do more for retrofit - **Stuart Elmes**, CEO, Viridian Solar
 - The role of solar panel cleaning in O&M - **Steve Williams**, Managing Director, Clean Solar Solutions
 - Enhanced comfort, reliability and efficiency for rural heat and hot water - **Joan Pisaneck**, Business Development Manager, Sunamp
 - Business rates for solar PV in Scotland: how to unlock the commercial rooftop market - **Paul Barwell**, CEO, Solar Trade Association
 - 2017 the year of solar thermal, how can the RHI decision kick start the market? – **George Goudsmit**, Managing Director, AES Solar
 - Solar + storage - **Peter Randall**, Managing Director, Solar Kingdom
 - Q&A and panel discussion
-

Grid Track (Morar/Ness)

Grid 2: Smart data, smart meters, smart grid

Morar/Ness

11:00-12:30

Chair: **Frank Clifton**, Project Development Manager, Scottish & Southern Electricity Networks

As GB moves towards a smarter network, this session will explore how we can maximise our use of network assets through best use of our asset data, grid-sharing and microgrids. Are we making the most of our data, and could AI be key to unlocking more potential from the grid? How can we improve resilience of our physical network, while maximising the load factor of connected renewables.

- Intelligent use of data and storage capacity to manage renewable generation in constrained grids - **Dr Wolf-Gerrit Früh**, Senior Lecturer, Heriot-Watt University
- Exploring the consumer and wider benefits of the smart meter rollout – **John MacNeil**, Head of Policy and Communications Scotland, Smart Energy GB
- NINES: The evolution of a smart grid - **Stevie Adams**, Senior Project Manager, Asset Management and Innovation, Scottish and Southern Electricity Networks
- Integration and management of distributed generation technologies in smart micro-grids - **Ivo Arnus**, Director Business Development, Norvento Enerxia UK
- The grid of the future – Solving new issues on the distribution system – **Edward Wylie**, Regional Sales Manager - Europe, AMSC (American Superconductor)

- Q&A and panel discussion

Grid 3: Ancillary market and sharing services

Morar/Ness

13:00-14:30

Chair: Sorcha Schnittger, Bid Development Manager, Scottish & Southern Electricity Networks

- Paying for capacity - **Dr Simon Gill**, Research Fellow, University of Strathclyde
 - The increasing importance of flexibility: unlocking value in ancillary services - **Prof Keith Bell**, ScottishPower Professor of Smart Grids, University of Strathclyde
 - Balancing and ancillary market: What next? - **Marc Smeed**, Senior Consultant, Xero Energy
 - Grid sharing structures: Legal issues and solutions – **Chris Martin**, Senior Associate – Energy & Construction, Burness Paull
 - Private transmission and distribution grid development – **Dr Nigel Scott**, Director, Xero Energy
 - Q&A and panel discussion
-

'Meet the Buyers' Share Fair

1-2-1 Meetings

Over the two day event, All-Energy will host a series of 1-2-1 'speed dating' meetings in the dedicated Share Fair area, located across the exhibition hall above the central boulevard. It's where you can literally 'Meet the Buyers' looking to expand their supply chains; and also seek 1-2-1 advice from companies offering to share their experiences so you can mirror their latest achievement. To see the full programme; attend your pre-booked meetings; or to book a meeting, please visit the Share Fair reception desk, from 12:00-17:30 Wednesday and 11:00-16:00 Thursday.

Wednesday 10 May

13:00-15:00

- East Anglia ONE - Mark Timmons, Senior Manager - Supply Chain Strategy Offshore Business, **ScottishPower Renewables**
- Tim Dumenil, Creative Spirit & Energy Consultant, **Pale Blue Dot Energy**
- Ole Stobbe, Business Development Manager - Northern Europe, **Ideol**

15:45-17:30

- Neart na Gaoithe, David Sweeney, Offshore Manager – Scotland, **Mainstream Renewable Power**
- Siobhan McDonald, SCM Manager, **CS Wind UK**
- Simon Cheeseman, Sector Lead, Wave and Tidal Energy, **Offshore Renewable Energy Catapult**
- Bengt-Erik Löfgren, Co-ordinator, **Swedish Pellet Association / ÄFAB**
- Andrew Leahy, **Resource Efficient Scotland**
- Steven Nauwelaerts, Co-Founder & CEO, **Laminaria**
- Isla Robb, Energy Supply Chain Senior Executive, **Scottish Enterprise**

Thursday 11 May

11:00-12:45

- David Carrascosa, Chief Technology Officer, **Saitec Offshore Technologies**
- Rob Clunas, Business Analyst, **Nevis Environmental**

13:00-15:00

- Low Carbon Transition Infrastructure Programme - Veronica Noone, Team Leader - Energy, **Scottish Enterprise**

15:30-16:30

- Miles Franklin, Lead Engineer, **Gravitricity**
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Community and Local Energy Seminar Theatre

Organised with Local Energy Scotland and Highlands and Islands Enterprise

Wednesday, 10 May

Located on the exhibition floor

Local Energy Scotland and Highlands and Islands Enterprise are pleased to be supporting the Community and Local Energy Seminar Theatre in collaboration with All-Energy. The Community Energy Seminar Theatre is a high-energy full day programme giving taster sessions of topics related to community and local energy. With over 20 speakers across four themes, the day will involve a series of fifteen minute presentations from experts, academia and communities involved in renewable energy projects and local energy systems. Please feel free to drop in and out over the course of the day.

Introduction

- 10:30 **Local Energy Scotland CARES support**
Chris Morris, Manager, Local Energy Scotland
- 10:45 **HIE and Local Energy Economies**
Audrey MacIver, Head of Energy, Highlands and Islands Enterprise

Energy systems, smart grids and communities

- 11:00 **Smart Fintry - Community**
Matthew Black, Community Project Manager, Fintry Development Trust
- 11:15 **Private wire grid systems**
Dr Nigel Scott, Director, Xero Energy
- 11:30 **Introducing the Cornwall local energy market - Centrica's smart grid vision**
Matt Hastings, Programme Director, Local Energy Systems, Centrica, Distributed Energy and Power
- 11:45 **South Seeds: Small-scale energy retrofit in an urban residential community**
Casey Dickson, Energy Officer and **Lisa Peebles**, Operation Officer, South Seeds
- 12:00 **BREAK**

Heat and district heating

- 13:00 **Approaching zero – utilising biomass DH on the road to carbon neutrality**
David Stutchfield, Sustainability Manager, University of St Andrews & **Mike Cooke**, Regional Director, Vital Energi
- 13:15 **Decarbonisation of district heating**
Richard Long, Head of Business Development, Urban Energy, ENGIE
- 13:30 **Project funding through district heating loan fund**
Ken Brady, Programme Manager District Heating, Energy Saving Trust
- 13:45 **Glenrothes District Heating Scheme**
Barbara Whiting, Lead Officer – Renewables & Low Carbon, Fife Council

Hydrogen

- 14:05 **Outer Hebrides hydrogen project**
Jennifer Ramsay, Project Manager - Local Energy Challenge Fund, Local Energy Scotland
- 14:15 **BIG HIT: Creating a green hydrogen energy system in the Orkney Islands**
Dr Kris Hyde, Technology Manager, ITM Power
- 14:30 **Hydrogen region 2.0: A unique eco-system on hydrogen in Flanders and the Netherlands**
Wouter van der Laak, Project Manager, WaterstofNet

14:45 **BREAK**

Commercialising Local Energy

- 15:00 **Shared ownership / partnerships**
Laura Nicolson, Shared Ownership Manager, Local Energy Scotland
- 15:15 **Tax and VAT considerations for renewable energy projects**
David Boyd, Partner, Scott-Moncrieff & **Alan Glen**, VAT Director, Scott-Moncrieff
- 15:30 **Towards a local energy economy – new legal models**
Stephen Phillips, Partner, Burness Paull LLP
- 15:45 **Power to the people – is direct sale of electricity possible?**
Colin McNaught, Managing Consultant, Ricardo Energy & Environment
- 16:00 **Selling your power to the highest bidder on the e-POWER auction**
Stuart Stephens, Commercial Director, e-POWER
- 16:15 **Faster commercialisation of stranded renewable resources**
Fraser Pritchard, Partner, Columbus Energy Partners

Summing up and close

- 16:30 **Summing up and close**
Jennifer Ramsay, Project Manager - Local Energy Challenge Fund, Local Energy Scotland

HIE Networking and drinks reception at the HIE Pavilion

Wave & Tidal Seminar Theatre

Sponsored by



Wednesday, 10 May

Located on the exhibition floor

- 10:30 **Can you prove (and improve) your innovation claims?**
Eileen Linklater, Client Relationship and Marketing Manager, EMEC
- 10:40 **When knowledge is power and power is money: solving the data and power challenges for wave and tidal installations**
Jenny Shaw, Business Development Manager, Scientific Management International
- 10:50 **In control of cost of energy**
Alexandra Price, Wave Power Engineer, Wave Power Conundrums
- 11:00 **Minimising marine energy risk by understanding uncertainties**
Sunny Shah, Research Engineer, IDCORE/Black & Veatch
- 11:10 **BREAK**
- 11:20 **Update on development of novel hull technology for wave energy converters**

Beth Dickens, Senior Consultant Engineer, Quoceant

11:40 **Quantor: Advanced digital hydraulic power take-off**
Jamie Taylor, Senior Project Manager, Artemis Intelligent Power

12:00 **The journey from consent to construction**
Stephanie Mill, Solicitor, Shepherd and Wedderburn

12:20 **BREAK**

12:30 **At home with EMEC: tackling key R&D challenges**

- 21st century energy systems: pioneering hydrogen storage
- Building confidence through performance data
- Reducing risks through standards and certification
- Increasing reliability through design analysis
- Mission planning for offshore operations
- Tackling corrosion with high-performance coatings
- Capturing lessons learnt and knowledge sharing
- New materials for marine energy moorings
- Smart sensing for subsea cables

At home with EMEC developers: Speed updates from EMEC's test sites - the return of the ever-popular quick fire updates from developers

- Scotrenewables: FloTEC (Floating Tidal Energy Commercialisation)
- CorPower: WaveBoost
- Laminaria: LAMWEC
- Tocardo: InToTidal (An integrated solution for tidal energy)
- Magallanes: Ocean2G (Second Generation technologies in ocean energy)
- Wello: CEFOW (Clean Energy from Ocean Waves)
- OpenHydro
- Nautricity
- SME
- EC-OG

14:30 **BREAK**

14:40 **Funding and financing renewable energy projects: Lessons learned from home and abroad**
Andrew Smith, Head of Investment, DP Energy

14:50 **FORESEA**
Oliver Wragg, Commercial Director, EMEC

15:00 **HydroAir™ Turbine Overview**
George Laird, Director, Commercialization New Technologies Europe, Dresser-Rand

15:10 **Tidal energy innovations to close the gap**
Tim Baker, Technical Director – Tidal Energy, Black & Veatch

15:20 **Joint UK & Canada marine energy project**
Gareth Berry, Energy Manager, Whitford

15:30 **BREAK**

15:40 **Fatigue driven steel offshore structure design and its analysis using finite element analysis**
Ondrej Chaloupka, Senior Engineer – Marine Energy, Black & Veatch

15:50 **The potential for tidal lagoons in the UK**
Gino Bawn, Senior Engineer, ITPEnersised

16:00 **Tidal support structure design process**

Martino Abbattista, Principal Marine Energy Engineer, Black & Veatch

16:10 **Making sense of the opportunity: The opportunity for techno-financial analytics for renewables**
Annicka Wänn, Senior Project Engineer, Exceedence

16:20 **CLOSE**

HIE Networking and drinks reception at the HIE Pavilion

Business Energy Efficiency Seminar Theatre

Thursday, 11 May

Located on the exhibition floor

10:30 **Interest-free Salix funding for public sector energy efficiency**
Sam Illsley, Scotland Programme Manager, Salix Finance

10:45 **Countdown to MEES 1**
Donald Caskie, Director, Real Estate Finance, Royal Bank of Scotland

11:00 **Countdown to MEES 2**
Simon West, Co-Founder & Director of Business Development, Arbnco

11:15 **BREAK**

11:30 **Decentralised waste to energy**
Yorik Tisseau, Bouygues Energies & Service Contracting UK

11:45 **Business insider stories - cutting energy consumption and costs**
Scottish SMEs give you the inside scoop on how they improved their energy efficiency and saved money with free support from Resource Efficient Scotland, a programme from Zero Waste Scotland.

- **Anna Graham**, Sector Manager – Resource Efficiency Team, Zero Waste Scotland
- **Our business and the environment**
Philip Brady, Director, PR Print
- **Out with the old, in with the new**
Graham Souter, Facilities & Development Manager, Manorview Group
- **Jane Bond**, Advice and Engagement – Business Support, Scottish Environment Protection Agency

12:30 **Barts Health NHS: Energy improvements through virtual benchmarking**
Darragh Gleeson, Senior Project Consultant, IES

12:45 **Centre for Energy Policy: How policy shapes markets in energy goods and services**
Chair: Prof Karen Turner, Director of the Centre for Energy Policy, University of Strathclyde

- **The significant impact of policy on energy efficiency investment in France**
Ian Cochran, I4CE, Paris & Visiting Scholar, Centre for Energy Policy, University of Strathclyde
- **Three points where Scotland's energy efficiency policy could make a difference**
Christian Calvillo, CXC Fellow, Centre for Energy Policy, University of Strathclyde
- **£20 million impulse for energy efficiency in Scotland, what's the impact**
Antonios Katris, Research Associate, Centre for Energy Policy, University of Strathclyde
- **Closing presentation**

Prof Karen Turner, Director of the Centre for Energy Policy, University of Strathclyde & **Gioele Figus**, Research Assistant, Centre for Energy Policy, University of Strathclyde

- 13:30 **Energy saving agreements: In the corporate built environment**
Stuart Campbell, Energy Director, Savills
- 13:45 **The challenges of energy performance contracting**
Mark Hobbins, Energy Project Manager, Robertson Energy Services
- 14:00 **Demand side**
Dr Alex Mardapittas, Managing Director, Powerstar
- 14:15 **Boosting the energy efficiency of buildings**
Danny Lykke Staerk, Product Manager – Heat/Cooling Solutions, Kamstrup
- 14:30 **Innovative ORC solutions for efficient and profitable waste heat recovery**
Stefano Consolandi, Sales Director EMEA, Exergy
- 14:45 **Compressed air systems: Are you blowing your profits?**
Hugo Gallagher, Managing Director/Lecturer, Logis-Tech Associates
- 15:00 **CLOSE**
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Offshore Wind Seminar Theatre

Sponsored by



Thursday, 11 May

Located on the exhibition floor

Managing Risks

- 10:30 **Innovative risk solutions for the evolving renewable energy sector**
Athanasios Kolios, Director, Energy Doctoral Training Programme, Cranfield University; **Adam Piper**, Executive Director, Willis Towers Watson; **Steven Munday**, Global Renewable Energy Leader, Natural Resources, Willis Towers Watson
- 10:45 **Intellectual property: A proactive approach to managing risk and opportunities**
Sam Bloor, Patent Attorney, Secerna
- 10:55 **Risk management – Managing disputes in offshore projects**
David Anderson, Partner, Shepherd and Wedderburn
- 11:15 **BREAK**

Vessels and Logistics

- 11:45 **Facing vessel design challenges today, to properly meet the needs of offshore wind tomorrow**
Iain Steven, Managing Director, CDC Scotland
- 11:55 **Autonomous subsea lift (& lowering) using cryogenic buoyancy**
Philip Pritchard, Founder & Director, Smarter Subsea Handling
- 12:05 **A new way of underwater 3D monitoring**
Pavel Kapricheski, Product Manager, Kongsberg Maritime

12:15 **Reducing the levelized cost of offshore operations using advanced metocean planning and forecasting techniques**

Dr Mark Lawless, Director, JBA Consulting

12:25 **Walk to Work: lessons learned from innovation in offshore personnel transfer**

Colin Pearce, Business Development Manager, Houlder

12:35 **BREAK**

Foundation Design

12:55 **LEANWIND novelties in foundation design for offshore wind**

Yeganeh Attari, Design Engineer, Gavin & Doherty Geosolutions (GDG)

13:15 **Use of Big Data in the design of offshore wind structures**

Jorge Parra Rodriguez, Engineering Manager, Atkins

13:25 **Replacing current corrosion protection with a single thermally sprayed coating**

Dr Henry Begg, Senior Project Leader - Surface Engineering, TWI

13:35 **Investigation of effect of soil damping on non-slender piles for offshore wind turbine foundations**

Arash Hemmati, PhD Researcher, University of Strathclyde (co-authored by **Prof Nigel Barltrop**, University of Strathclyde)

13:45 **Using iPCoD to explore potential effects of offshore wind farm pile-driving disturbance on North Sea harbour porpoise population**

Dr Cormac Booth, Principal Scientist, SMRU Consulting Europe

13:55 **BREAK**

Floating

14:15 **Starfloat™ - Innovative solution for floating offshore wind**

Graeme Mackie, Managing Director, Ocean Flow Energy

14:25 **Development, construction, installation and operation of a competitive floating offshore wind platform - DemoSATH project**

Amaia Martinez, Project Manager, Saitec Offshore

14:35 **Floating wind: Mooring system design and life cycle integrity**

Malcolm Bowie, Director, First Energy Development

14:45 **BREAK**

O&M

14:55 **Optimisation of offshore operations and maintenance (O&M) packages throughout the O&M lifecycle**

Bruce Clements, Business Development Manager, CWind

15:05 **Optimisation of offshore wind assets performance through control**

Carlos Gonzalez, Senior Control Engineer, Wood Group - clean energy (formerly SgurrEnergy)

15:15 **Offshore wind farm O&M cost reduction using an integral approach for failure diagnosis and prognosis**

Marco Sepulveda, Research Engineer, Lloyd's Register - IDCORE

15:25 **CLOSE**

Poster Presentations

Wednesday 10th & Thursday 11th

Poster presentations are hosted in the back of the exhibition hall.

Model- and full-scale predictions of hydrokinetic turbulent wake, including model-scale validation

Dr Shanti Bhushan, Assistant Professor, Mississippi State University & Dr David Thompson, Professor, Mississippi State University

Characterising the wind at high altitudes for airborne wind energy

Dr Adrian de Andres, Post-Doctoral Research Fellow, Edinburgh University

Decision support tool for planning wind farm O&M activities

Rafael Dawid, PhD Researcher, University of Strathclyde

Optimisation of power take-off (PTO) in tidal turbines

Juan Pablo Echenique, Research Associate, University of Edinburgh, Markus Mueller, Professor, University of Edinburgh and Dimitrios Papaoikonomou, Electromechanical Engineer, Tocardo

The Willenhall project - A 2MW, 1MWh grid-connected lithium-titanate research facility

Martin Foster, Professor of Electrical Energy Storage and Conversion, The University of Sheffield

TransEnergy: Road to rail exchange - EPSRC sponsored project researching the deployment of energy storage on DC rail networks

Martin Foster, Professor of Electrical Energy Storage and Conversion, The University of Sheffield

Advanced adsorptive CO₂ capture processes for carbon-negative energy production from biomass

Ifeoluwa Garba, PhD student, Centre for Doctoral Training Wind & Marine Energy Systems, University of Strathclyde

Implementation of a PV battery charger using ICT WEEE

Dr David Hewitt, Research Associate, The University of Sheffield

Can bus users' preferences bolster low emission bus schemes? Lessons from Europe's largest hydrogen bus fleet

Luis Enrique Loria, Researcher, University of Aberdeen

Economic analysis on engineering technology and financing system of developing localized offshore wind farms in Taiwan

Stephanie Mann, EngD Research Student, Uniper/Edinburgh University

A study on adsorption process for pre-combustion carbon capture at a biomass CHP plant

G.D. Oreggioni, D. Friedrich, S. Brandani, H. Ahn, Scottish Carbon Capture & Storage

Advanced biomass gasification technologies

Jamie Bell, Umesh Kumar, Manosh C Paul & Ahmed Morsy Mostafa Salem, Systems, Power & Energy Research Division, School of Engineering, University of Glasgow

CHP from waste and biomass: Advanced thermal treatment

Harnek Dhami, Douglas Forsyth, Ainul Nadirah Izaharuddin, Manosh C Paul & Panagiotis Pavlos, Systems, Power & Energy Research Division, School of Engineering, University of Glasgow

Combustion and gasification engineering (CombGEN)

Manosh Paul, Systems, Power & Energy Research Division, School of Engineering, University of Glasgow

Syngas combustor: Design, analysis, characterisation and optimisation

Roni Aarnikoivu, Manosh C Paul & Tananop Piemsinlapakunchon, Systems, Power & Energy Research Division, School of Engineering, University of Glasgow

Syngas from underground coal gasification

Nader Karimi, Manosh C Paul, Alexandro Scotchfield, Tata Sutardi & Paul Younger, Systems, Power & Energy Research Division, School of Engineering, University of Glasgow

Smart monitoring system with wireless triggering and wireless time synchronisation

Faisal Peer Mohamed, Research Associate, University of Strathclyde

Finding a way to a healthy balance

Helen Robinson FGS, PhD Candidate & UK Ambassador WING, University of Glasgow

Biomethane production improvement through feedstock pretreatment and co-digestion

Cristina Rodriguez, PhD Student, University of the West of Scotland

Trade-offs in Levelised Cost of Heat among different domestic heating technologies

Zack Wang, Doctoral Researcher, UCL Energy Institute

Reducing the levelised cost of energy (LCoE) on wind energy converters through an adaptive control & global minimisation of system losses

Aaron Williams, PhD Student, University of Glasgow



Smart Urban Mobility Solutions Conference

(Alsh 1)

Sponsored by



Wednesday, 10 May

Smart Urban Mobility Solutions 1: Transport in Scotland: Now and the next 10 years

Organised by: Transport Scotland

11:00-12:30

Transport Scotland is the national transport agency for Scotland. Our role is both to deliver the transport infrastructure to meet Scotland's needs and to develop the strategic framework that informs this. The next ten years will be challenging and exciting. And we want to hear from you about how you think the next ten years should unfold. We want to maximise the opportunities for debate and comment, so we'll be looking for audience contributions during the session. We will look to frame discussion around four 'PechaKucha' style presentations on: strategy, future demands, technology and the environment.

Chair: Roy Brannen, Chief Executive, Transport Scotland

Keynote Address: **Humza Yousaf MSP**, The Minister for Transport and the Islands

Presentations from Transport Scotland:

- **Heather Cowan**, Head of Transport Strategy and European Funding
- **Alison Irvine**, Head of Technical Analysis
- **Archie Stoddart**, Head of the Sustainable Transport Unit
- **Stephen Thomson**, Head of Environment & Sustainability

Presentation from the Energy Saving Trust:

Marina Bauer, Assistant Manager, Energy Saving Trust

Smart Urban Mobility Solutions 2: What smart cities are doing (part 1)

14:00-15:30

Chair: Neil Amner, Director, Anderson Strathern LLP and President, Glasgow Chamber of Commerce

- Smart Cities and mobility – overview - **Neil Amner**, Director, Anderson Strathern LLP and President, Glasgow Chamber of Commerce
- Smart transport in Core Cities - **Graham Grant**, Transport Lead, Newcastle City Council
- Transforming London's road transport - **Rhona Munck**, Senior Strategy & Planning Manager - Environment & Walking, Transport for London
- Cities at home and overseas - **Richard Bellingham**, Director, Institute for Future Cities, University of Strathclyde
- E-mobility within RUGGEDISED – **Gavin Slater**, Group Manager - City Energy & RUGGEDISED, Glasgow City Council
- Smart ticketing and smart passengers – **John Berry**, Sustainable Transport Team Leader, Dundee City Council
- Quick Fire
 - **Matt Crisp, Director**, Living Map
- Q&A and panel discussion

Smart Urban Mobility Solutions 3: Connected and autonomous vehicles

Organised with ITS United Kingdom

16:00-17:30

Chair: Giles Perkins, Technical Director, Mouchel & Communications Director, ITS UK

- Anticipating a connected and autonomous future - **Giles Perkins**, Technical Director, Mouchel & Communications Director, ITS UK
- Connected and autonomous vehicles - CCAV update - **Lucy Yu**, Head of Innovation and New Mobility Services, Centre for Connected and Autonomous Vehicles, Department for Transport (DfT) and Department for Business, Enterprise and Industrial Strategy (BEIS)
- The future is now - **Robert Llewellyn**, Host, Fully Charged
- The opportunities for EVs in a CAV world - **Venn Chesterton**, ULEV and Energy Lead, TRL
- Q&A and panel discussion

18:00 Civic Reception and Giant Networking Evening at the Glasgow Science Centre – all welcome

Thursday, 11 May

Smart Urban Mobility Solutions 4: Powering from renewables

Organised with ITS (United Kingdom)

11:00-12:30

Chair: John Curtis, Founder, Revolutionall

- Delivering sustainable transport - **Darran Messem**, Managing Director, Certification, Carbon Trust
- Solar powered and low energy options for public transport information displays – **Simon Johnson**, Owner, Technoframe
- Innovation in the delivery of electronic passenger information in Norfolk – **Jeremy Wiggin**, Transport for Norwich Manager, Norfolk County Council
- Don Quichote project: demonstration of hydrogen applications in smart grid environment - **Wouter van der Laak**, Project Manager, WaterstofNet & **Ahmed Essam Aly**, Project Manager, FAST - Federazione delle associazioni scientifiche e tecniche
- Green energy fuelling green vehicles – **Dr Alex Mardapittas**, Managing Director, Powerstar
- Q&A and panel discussion

Smart Urban Mobility Solutions 5: What smart cities are doing (part 2)

13:00-14:30

Chair: Dr George Hazel, Programme Manager, MaaS Scotland

- City level challenges in the smart mobility era – **Dr George Economides**, Head of Strategy, Preston IMC
- Systems for collaboration between traffic management authorities, service providers and vehicles – **Dr Ian Cornwell**, Technical Director, Transport Technology, Mott MacDonald
- An analytical review of demand responsive transport solutions – **Joseph Smith**, Consultant, Preston IMC
- Making the most of road capacity with predictive decision support – **Devrim Kara**, Director UK & Ireland, PTV Group
- Quick Fire
 - Mobility as a service in Scotland - **Dr George Hazel**, Programme Manager, MaaS Scotland
 - Travel mode identification with smartphones – **Markus Ray**, Head of Business Unit, AIT Austrian Institute of Technology
 - DigitalTown's role on the smart transport scene – **Jorge Saraiva**, Vice President – Europe, DigitalTown
- Financing alternative fuelled vehicles – **Martin Reeves**, Head of Sales, Lombard Vehicle Solutions
- Q&A and panel discussion

Smart Urban Mobility Solutions 6: Keep charging on: fuelling the future – now!

15:00-16:30

Chair: Morag McCorkindale, Aberdeen Renewable Energy Group (AREG) and Aberdeen City Council

- Real world intelligent charging for the mass-market – **Dr Liam Lidstone**, ETI Strategy Manager – Light Vehicle Integration, Energy Technologies Institute (ETI)
- The barriers to investment in EV charging and how to overcome them – **Nick Lyth**, Director, Green Angel Syndicate
- Electric Nation: demand management electric vehicle trials – **Esther Dudek**, Senior Consultant, EA Technology
- Fuel cell bus pilots facilitate future deployments for zero emission buses – **Dr Ir Flip Bamelis**, R&D Project Coordinator, Van Hool
- Hydrogen Mobility Europe (H2ME) demonstrating hydrogen transportation as a solution for uncompromised zero emissions operation – **Dr Richard Kemp-Harper**, Head of Innovation, Arcola Energy
- Levenmouth community energy project – **David Hogg**, Technical Manager, Bright Green Hydrogen
- Q&A and panel discussion