

10-11 MAY 2023 | SEC, GLASGOW

SHOW CATALOGUE



Heat the Streets

21st Century Version of the Gas Network



Heat the Streets
As featured
in the
Financial Times

- Ground source for price of air source
- We fund, own and maintain infrastructure
- Homeowner is responsible for heat pump in house
- Shared ground loop infrastructure in place of gas network

Key benefits



Funded shared ground arrays makes ground source the same price as air source.



Ground source is more appealing; units are low noise, installed inside, and capable of cooling.



We emulate arrangements you are familiar with in the gas network with our funded ground array.

- Funded by Kensa Utilities
- Installed by Kensa Contracting
- Manufactured by Kensa Heat Pumps

100+ Heat Pumps Deployed

New Build: With the 2025 Future Homes Standard: the cheapest way to deliver heat.

Social Housing: Life-cycle cost benefits without upfront cost challenge.

Private Retrofit: Lowest cost way to decarbonise.

Customer feedback

“When this came along it was an easy yes, this was our dream system”



Scan to watch

Heat the Streets has been part funded by the European Union



HM Government



European Union
European Regional Development Fund

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Organisers of All-Energy and Dcarbonise



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Welcome to All-Energy & Dcarbonise 2023...

... the meeting place for the renewable and low carbon energy community, and back bigger, better and brimming with more free networking, knowledge, and technology than ever before to help us engineer a net zero future together.

We are delighted you are here with us, putting yourself at the centre of your community, where you will this week rub shoulders with thousands of colleagues and hundreds of exhibitors, many from overseas – including returning pavilions from Italy, Flanders, and Denmark – all here to meet and do business with you, including at least 80 new organisations exhibiting for the first time this year.

Your attendance here at All-Energy & Dcarbonise 2023 will provide you with the insight and connections to stay ahead in this rapidly developing landscape, ensuring you have the best chance of success as we deliver the UK's green ambitions together. It will also provide you with an invaluable opportunity to find the latest technologies, services, and advice, connecting you with the most comprehensive source of industry expertise and business opportunities seen anywhere in the UK. As such, I would urge you to get involved in every aspect of the event to gain maximum benefit from it.

Here are just some of the highlights which will help you achieve a considerable amount over the next couple of days:

World-class conference

The combined All-Energy and Dcarbonise conference programmes provide a myriad of star conference speakers looking at the challenges,

the opportunities and, importantly, the innovative solutions across renewable power, low carbon heat, energy efficiency & low carbon transport.

The programme contains over **65 sessions** for you to attend, delivered by **some 500 speakers** – a veritable “who’s who” of the industry – in what is undoubtedly one of the industry’s biggest free of charge conferences seen anywhere in the world, something we are hugely proud to deliver to you. Check out the full conference programme on pages 12-15 to see the amazing breadth of FREE knowledge on offer to you.

Trusted show features and the latest content to help you

The “**Meet the Developer**” meetings programme is back once again to help suppliers of renewable energy solutions meet organisations who are actively looking to expand their supply chains; the **Power Club** continues to welcome and host project developers and investors; and no less than **eight “Quick Fire” show floor theatres** will again provide you with bite-size chunks of free learning whilst you do business on the busy exhibition floor. See page 25 for further information.

Future Talent to power our Net Zero ambitions

Future Talent is hugely important to all of us as we strive towards meeting our decarbonisation commitments. As such, this year boasts more youthful focus across the event including:

- o **Back by popular demand** – the **Future Talent Hub**, kindly supported by a host of energy organisations, groups and individuals, boasts a programme of free-to-attend sessions focussed



around attracting new and re-skilled resource & talent to power an accelerated net zero future. Check out its programme on pages 26-27 and visit A50 to benefit from this important free learning.

- o The co-located **Green Skills for a Net Zero Future** feature, delivered by the Energy Skills Partnership in conjunction with a number of their members, highlights the proactive approach colleges across Scotland are taking to support the Climate Emergency and the Just Transition to Net Zero. Working together, they are developing and delivering the capability, capacity, and curriculum to support skills for the Energy Transition, Transport, Engineering and Manufacturing, Construction and Energy Efficiency. Visit the area on A40 to discuss your skills requirements, available support and see live demonstrations of the training activities colleges are offering.
- o The **Research Hub**, delivered by ETP on stand K70, is home to academic/industry presentations from key organisations involved in renewable energy in Scotland, England, and Northern Ireland. The Hub features a presentation theatre with a rolling programme over the two days.
- o The Shell Eco-marathon is a global academic programme that challenges talented students to design & build cars, considering technical and behavioural factors, to achieve game-changing energy efficiency results. Come and meet the two teams from the Universities of Aberdeen and Strathclyde to learn about their marathon developments on stand R41.
- o Further skills sessions in the conference include “*Workforce: Green jobs, Skills, and Training*” (11:00-12:30) and “*Working for Net Zero: Ensuring good quality and sustainable jobs: A joint Centre for Energy Policy and Future Energy Skills event*” (14:00-15:30), both in Dochart on Wednesday 10th May.

Dcarbonise – more opportunity to drive the sustainability agenda and your own green future

The trend for providing new knowledge, connections and opportunity continues again this year with the return of Dcarbonise alongside All-Energy. Where All-Energy has spent two decades helping the UK to decarbonise its power supply, Dcarbonise has been introduced to ensure that private and public sector energy end-users gain the same access to advice and technology to assist them in their plans to decarbonise their buildings, businesses, and transportation. Exhibitors on the show floor, and related sessions in both the topical theatres and conference rooms, will provide you with the latest solutions and know-

how to improve the **energy efficiency** of your buildings, including the key role of **low carbon heating technologies**.

You will also be able to see some of the latest and cleanest vehicles on our roads by visiting the Decarbonising Transport zone and dedicated seminar theatre, kindly sponsored by Shell, and the Hydrogen Hub & Tech Showcase (both in Hall 4).

Exceptional networking

From a networking perspective, All-Energy has long held a reputation for memorable networking events, and this year is no exception with the much-lauded AND free-to-attend **Giant Networking Evening**, kindly sponsored by Siemens Energy, and incorporating the **Civic Reception** to welcome you to Glasgow, courtesy of Rt Hon The Lord Provost of Glasgow. The evening takes place once again in the engaging Glasgow Science Centre across the river from the show venue, from 6-8pm. The event is a truly exceptional opportunity to relax after a busy day whilst catching up with friends old and new. All welcome.

On behalf of the entire All-Energy & Dcarbonise team, I would like to extend our immense thanks to all our industry supporters and luminaries, committee members and conference chairs, speakers, sponsors, exhibitors, visitors, and press & media partners that collaborate with us to deliver the events each year. Their efforts, and the relationship we enjoy with them, are fundamental to their success.

We are honoured to have been helping the UK low carbon & renewable energy industry to engineer a net zero future for over two decades and look forward to continuing that key role as we all strive to meet strong decarbonisation targets in the years ahead. In the meantime, though, thank you for attending the focal point of the industry’s calendar this year and I wish you a highly successful week of business and networking at All-Energy & Dcarbonise 2023.



Jonathan Heastie
Portfolio Director, Energy & Marine
RX Global – in the business of building businesses

General information



Opening times

Wednesday 10 May - 08:30-18:00
Thursday 11 May - 08:30-16:00



All-Energy and Dcarbonise 2023

If you are interested in reserving exhibition space for next year's event being held at the SEC on 15 and 16 May, please visit our stand K40.



Animals and pets

Pets or animals are not allowed into the SEC or All-Energy and Dcarbonise conference and exhibition with the exception of registered guide dogs.



Cafés and restaurants

There are café areas inside the exhibition halls and on the concourse. For restaurants in the Glasgow area, please visit peoplemakeglasgow.com



Car parking

There are ample parking facilities at the SEC multi storey car park for cars. For coach parties requiring parking, please contact the SEC reception direct.



Cash machines

There are ATM facilities in the SEC concourse.



Cloakroom and luggage storage

There is storage provided for visitors and exhibitors in the SEC concourse. Please note that there is a £2 charge per item



Disabled facilities

The SEC main building has automatic doors at both East and West entrances. The Conference Centre has widened main entry doors, which a steward will be pleased to open for you. All halls in the main building are situated at ground level, and the upper levels of the Conference Centre, Loch Suite and Seminar Suite are all accessible by lift. For more information about wheelchair access, travel, carparking and toilet facilities visit sec.co.uk.



Internet access

The SEC offers free internet access each day for attendees.



Lost property

If you need to locate any lost property, contact SEC Security at the East Entrance reception.



Medical centre

This is located at the East Entrance in the SEC concourse.



Meeting point

This is situated at All-Energy and Dcarbonise main registration area at the front of Hall 5.



Networking tools: Make the most of your visit with the All-energy and Dcarbonise event App

Download the All-Energy and Dcarbonise App and enjoy seamless experience with your smartphone, ensuring you get the quicker navigation routes to exhibitor stands, conference rooms or any other show floor features. Keep your eyes on the event agenda, save time and search the exhibitor and visitor directory, favourite exhibitors, conference sessions & speakers to create your personalised show plan and send exhibitors and industry colleagues messages and meeting requests.



Organisers' office

Situated at back of Hall 4 within the exhibition.



Press & speakers' room

Situated in Boisdale 2 in the Loch Suite across the concourse from the exhibition hall.



Problems

If you experience any problems with any of the services during your visit please let the All-Energy and Dcarbonise Team know at the Organisers' Office at the back of Hall 4.



Public address system

The public address system is for official announcements only. It is not available to visitors or exhibitors.



Smoking policy

SEC Glasgow operates a no smoking policy throughout the venue. Smoking is permitted outside the venue.

Admission policy

- Only pre-registered visitors who are badge holders, visitors who register onsite, and exhibitors who are badge holders will be able to attend the Event.
- Visitors who register onsite at the Event are free to attend and we don't charge for onsite registrations
- Admission is open to professional and business visitors and exhibitors who are involved in or have a direct connection or interest in the subject area of the Event or associated industries or organisations. Visitors and exhibitors should be dressed in suitable business wear.
- By choosing to allow their badge to be scanned by an exhibitor or sponsor during the Event, visitors will be allowing the Organisers to provide their name and contact details to the exhibitor or sponsor, who may be outside of the European Economic Area and who may contact them about their products or services in accordance with their privacy policies.
- By choosing to attend any session in our seminar theatres, visitors will have their badge scanned at entry and their name and contact details will be shared by the Organisers with the seminar host/exhibitor, sponsor and/or speaker who may be outside of the European Economic Area, who may contact them about their products or services in relation to such session in accordance with their privacy policies.
- Badge holders must not allow their badges to be worn by anyone else. Any failure is likely to lead to the badge holder and the person wearing the badge being removed from the Event.
- Anyone obtaining a badge by theft, deception or other illegal means will likely be asked to leave the Event.
- Anyone attending the Event should carry and produce on request of the Organisers a personal photo-ID (e.g., passport, photo-ID driving licence, national identity card) or other identification acceptable to the Organisers.
- No one under the age of 16 will be able to attend the Event without the prior written approval of the Organisers. Visitors attending with children under the age of 16 will be responsible for their children and will be asked to put their mobile number on a wristband to be worn by the child.
- With the exception of guide dogs or other service animals, no pets or animals of any description will be allowed into the Event.
- Anyone attending the Event must not take part in any canvassing, leafleting, demonstrations, objectionable behaviour or wear offensive apparel or be involved in any activity which may disrupt the Event.
- Press badges at the Event are restricted to publishers, editors, journalists, photographers, broadcasters and web bloggers associated with the industry. Members of the press may be required to complete an application form and produce accreditation in the form of a photocopy of a recognised press or media card, business card, NUJ card, a letter from the editor or an official web address linking to a press release in order to verify their position. Press applications from advertising personnel and media sales representatives will not be accepted.
- Official photographers and film crew will be taking photographs and recording and/or streaming videos at the Event. Each attendee authorises such photography and recording and permits the Organisers to use the attendee's image, likeness and voice for archival and promotional purposes in any and all media, without liability, compensation or credit to the attendee.
- No visitor to the Event may take photographs or make any form of recording (including audio or video) on any media at the Event under any circumstances without the prior written permission of the Organisers.
- The Organisers reserve the right to exclude or remove anyone from the Event and the venue who does not comply with this policy or who they reasonably consider is likely to break these rules or who is prohibited from attending under any applicable sanctions, laws or regulations, or otherwise at the Organisers' discretion.
- COVID-19 Safety and Security
The safety and security of our staff and attendees is our priority. We work closely with the venue, location and national authorities to identify risks, assess them and develop security plans for our events.

ESPECIALLY FOR THE UK

1.5 – 2.1 PLATFORM



VENSYS 62
1.5 MW

ROTOR DIAMETER | 62
HUB HEIGHT (m) | 49



VENSYS 70
2.1 MW

ROTOR DIAMETER | 71
HUB HEIGHT (m) | 57.4 | 64.4 | 84.4



VENSYS 82
1.5 MW

ROTOR DIAMETER | 82.3
HUB HEIGHT (m) | 58 | 85 | 100

3.5 – 4.1 PLATFORM



VENSYS 115
4.1 MW

ROTOR DIAMETER | 115
HUB HEIGHT (m) | 72.5 | 92.5



VENSYS 126
3.8 MW

ROTOR DIAMETER | 126.2
HUB HEIGHT (m) | 86.9 | 96.9 | 136.9



VENSYS 136
3.5 MW

ROTOR DIAMETER | 136.6
HUB HEIGHT (m) | 81.7 | 97.2 | 100
131.7 | 161.2

Show Features



INNOVATION AND THE INNOVATIVE SOLUTIONS THEATRES

Innovation – a silver thread running throughout the show

All-Energy has long had a close association with UKRI, Innovate UK and KTN – the conference programme demonstrates this with their hand on the tiller of six sessions. The Innovate UK stand will showcase exciting innovations and offer a hub to network and collaborate with industry experts. As proof of how important innovative solutions are to the audience at both All-Energy and Dcarbonise, there will be not one, but two Innovative Solutions show floor theatres open on 11 May – one close by the Innovate UK stand, and the other just in the next area, taking Day 2 ownership of the Built Environment decarbonisation theatre.

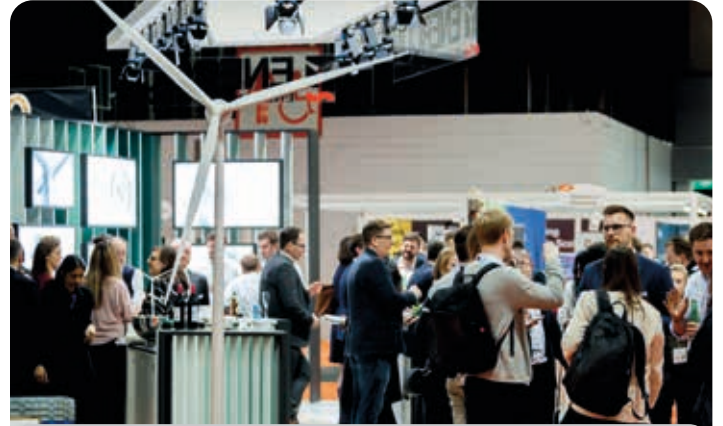


THE RESEARCH & INNOVATION HUB

Focusing on academic /industrial research projects

The Research & Innovation Hub, an ETP initiative, focuses on energy-related projects that have high levels academic and industrial collaboration and demonstrate the research and innovative technologies that have been developed as a result of effective collaboration. This year nearly 20 are represented each with their own pod and presenting their research project in the Hub's theatre with its rolling programme over the two days. With an eye on the future, the Hub provides a space for networking in order to generate new similar partnerships.

Academic posters have been a regular feature of All-Energy since 2005 there will be 30 or so on display in the nearby Academic Zone.



OFFSHORE WIND THEATRE

*A packed programme of presentation on Day 1
Sponsored by DWF*

From 'Grid development: Key enabler to deliver 50GW offshore wind by 2030' to 'Practical Approaches to Contractual Claims and Disputes', the DWF sponsored Offshore Wind Show Floor Theatre (10 May - 10:30 - 16:30) lies at the heart of the exhibition. Its programme complements offshore wind conference sessions sponsored by Shepherd and Wedderburn in the Lomond Auditorium - looking towards 2030, Ofgem's session on new offshore transmission infrastructure, floating offshore wind; the supply chain; INTOG; plus 'Meet Tim Pick'; and a Marine Scotland session (11 May - 11:00-12:30) 'What's happening in 2023'.



COMMUNITY AND LOCAL ENERGY THEATRE

Four central themes for an enlightening day

Local Energy Scotland's (LES) programme in the show floor theatre spotlight embraces 'Technical solutions and innovation', 'Funding and markets', 'Urban energy projects', and Community benefit, collaboration and shared ownership' with over 20 stakeholders taking part explaining the 'what, why, and how's' of community and local energy and sharing lessons learned. The programme starts at 10:15 and runs until 16:15 on Wednesday 10 May with plenty of time for Q&A and networking. On 11 May the main conference programme features two LES sessions one on 'Community and Local Heat' (11:00-12:30 and the other looking at 'Shared Ownership and Community Benefit' (14:00-15:30).



'MEET THE DEVELOPER' SHARE FAIR

Do developers need your products & services?

Join us for a series of 1-2-1 speed dating meetings in a dedicated area, STAND H90, next to the Power Club. This is where buyers for developments can meet with potential suppliers in 1-2-1 meetings to discuss how their product/service might fit into the supply chain. If you are a developer wanting to take part, contact Carlos.Fernandes@rxglobal.com. Suppliers, check our website to book now!

BUILT ENVIRONMENT DECARBONISATION THEATRE

Delighted to have MCS with us at the show!

MCS aims to see certified products and installations in every UK home and community. If you are an Installer wanting to be certified, if you are a home or office owner wanting to find a certified installer, with MCS exhibiting at the show and leading a panel discussion in this theatre (14:15-15:15 on 10 May) on 'Decarbonising Scotland's homes', you've come to the right place! The theatre will be in operation on Day 1 (it switches to become Innovative Solutions 2 on Day 2) and also features ETZ, Changeworks; GeoPura, Zero Waste Scotland; the NMIS; ScottishPower and SSE.

MARINE ENERGY & FOW THEATRE

The annual EMEC & Friends session is unmissable!

Following a day-long 'Marine Renewables and Floating Offshore Wind' programme in the main conference on Day 1 the show floor theatre will be abuzz on 11 May with quick-fire presentations from 10:30 onwards. For the first time, in deference to INTOG, we have brought floating offshore wind under the 'marine renewables' banner. You think you've seen quick fire - just wait until the European Marine Energy Centre and those friends of theirs give their ocean updates - with so much going on in the waters off Orkney they might break all speed records! Academic posters have been a regular feature of All-Energy since 2005 there will be over 30 on display in the nearby Academic Zone.



HYDROGEN & ENERGY STORAGE THEATRE

What's happening in Orkney and much, much more!

Both hydrogen and energy storage feature prominently on the main conference programme (three H2 sessions and two energy storage ones, as well as H2 panellists in many sector-specific sessions). From 'Fast tracking an electrolytic hydrogen project in Glasgow' at 10:30 on 10 May right through to the final presentation on Day 2 'Updates on electrolyser technology' there is much to inspire you. Be sure to catch the 'Hydrogen updates from EMEC and friends' on Day 1. Just like Day 2's 'Ocean updates' these EMEC sessions are a true highlight. We are grateful to them and their speakers for being with us.

HEAT DECARBONISATION THEATRE

Stressing the importance of decarbonising heat

Three conference sessions with a ministerial keynote address (10 May) devoted to 'Heat transition to net zero' stress the importance of encouraging everyone in Scotland and indeed throughout the UK to grasp that proverbial nettle and set about decarbonising heat NOW! The show floor theatre is in operation on both days and features hour-long sessions on each day from the Danish Board of District Heating; a riveting conversation between ScottishPower and WWF on 'Heat Pumps: Everything you need to know' and so much more - yes, hydrogen gets a look in too! Well over 30 presentations in the theatre plus as those conference sessions should inspire you!

Show Features



TRANSPORT DECARBONISATION THEATRE

The **Shell-sponsored** Transport Decarbonisation Theatre is set to be busy and buzzing following a keynote addresses by Scotland's Transport Minister and Shell, round table discussion in the main conference on decarbonising HGVs. The show floor theatre starts with both Shell Eco-marathon teams explaining how they have designed/built their vehicle. Other highlights include decarbonisation of railway transport and ports, public transport, EV infrastructure as well as the all-important topic of enabling transport decarbonisation across the supply chain.



ARNOLD CLARK ELECTRIC CAR SHOWROOM

Arnold Clark Vehicle Management is proud to showcase the future of transportation at the All-Energy Conference 2023. With a number our product geniuses on hand to answer all of your questions on alternative fuel vehicles and exciting new car technology, you'll also be able to see the vehicles first-hand and book a test drive for a later date. Our friendly sales team will be available to chat through all our EV solutions including Arnold Clark Salary Sacrifice, contract hire and daily rentals. We offer our customers expert advice to help guide them through the electrification of their fleet, from start to finish.



CIVIC RECEPTION AND GIANT NETWORKING EVENING

Everyone welcome! Your badge is your entrance ticket - 18:00 on 10 May

Sponsored by **Siemens Energy**

Our thanks go to The Rt Hon The Lord Provost of Glasgow for the Civic Reception held at the Glasgow Science Centre.



It has a very definite twist, there is a seamless join between it and our Giant Networking Evening that does just what it says on the proverbial 'tin'. It is big and it is fun (hundreds of interactive exhibits to play with!) and has one aim in mind, NETWORKING! Over a thousand will gather at the Centre, just a short stroll over the River Clyde from the SEC. The piper will lead us from the exhibition hall over the footbridge just follow the sound of his pipes! Join us there to relax, unwind, and get busy networking after a busy day.



FUTURE TALENT THEATRE AND HUB

Future Talent is hugely important to all of us as we strive towards meeting our Net Zero ambitions. The Future Talent Hub, kindly supported by a host of energy organisations, groups & individuals, boasts a programme of free-to-attend sessions focussed around attracting new and re-skilled resource & talent to power an accelerated net zero future. Check out its programme on page 27 and visit STAND A50 to benefit from this important free learning. The co-located **Green Skills for a Net Zero Future** feature, delivered by the Energy Skills Partnership, highlights the proactive approach colleges across Scotland are taking to support the Climate Emergency and the Just Transition to Net Zero. Visit STAND A40 to discuss your skills requirements, available support and see live demonstrations of the training activities colleges are offering.



Lowering Carbon Impact to Improve Sustainability

See you next year

15-16 MAY 2024,
SEC, GLASGOW

Find out more about exhibiting opportunities:
Visit the All-Energy and Dcarbonise stand today

Follow the conversation:



Dcarbonise



@DcarboniseEvent



www.all-energy.co.uk

Co-located with



Organized by



All-Energy and Dcarbonise

Conference streams and sessions in 19 theatres over the two days will place a heavy focus on the joint aims of energy security and net zero, with the count down to key targets urging us ever onwards.

All forms of renewable energy will be covered as well as energy systems; transmission, grid and networks; hydrogen and energy storage; cyber security; finance and funding, community and local energy and much more under the All-Energy banner. While Dcarbonise, concentrating on the needs of the end user, embraces decarbonisation of transport, heat, the built environment, industry, cities and the supply chain.

Wednesday 10 May

	Lomond Auditorium	Forth	Gala	Carron	Dochart
09:00 - 10:30	Opening plenary session in the Lomond Auditorium Confirmed speakers: Chair: Keith Anderson, CEO, ScottishPower; The Rt Hon The Lord Provost of Glasgow Councillor Chair 2023. Professor at Imperial College London. Chair of the Scottish Just Transition Commission; David Bunch, Councillor Susan Aitken, Leader of Glasgow City Council.				
10:30 - 11:00					
11:00 - 12:30	Offshore Wind 1 Offshore wind: are we still on track to 2030? Sponsored by 	The Hydrogen Transition 1 Technology & Policy Push In association with SHFCA	Energy Systems 1 Is there an end to the gas security crisis?	Solar 1 Planning and Environmental: Social guidance - Natural capital and biodiversity In association with Solar Energy Scotland	Workforce Green jobs, Skills, and Training
12:30 - 14:00	Visit exhibition				
13:00 - 13:40	Meet Tim Pick, UK Offshore Wind Champion, see pages 15 and 16				
14:00 - 15:30	Offshore Wind 2 Investment in, and coordination of, new offshore electricity transmission infrastructure Sponsored by  In association Ofgem	Energy Storage 1 Accelerating the shift to low carbon energy storage 1	Energy Systems 2 Energy security and net zero: the roles of geopolitics and UK offshore resources	Onshore Wind 1 An Onshore Wind Sector Deal for Scotland: Forging the future	Working for Net Zero Ensuring good quality and sustainable jobs A joint Centre for Energy Policy (CEP) and Future Energy Skills (FES) programme event
15:30 - 16:00					
16:00 - 17:30	Offshore Wind 3 The growing pains of offshore floating wind Sponsored by 	The Hydrogen Transition 2 Creating Market Pull In association with SHFCA	Energy Systems 3 Electricity supply resilience	Onshore Wind 2 Turbine transportation: Pinch points and access rights	Supply Chain Decarbonisation Part 1 The Powering Net Zero PACT Part 2 The Scottish Business Climate Collaboration and Business in the Community
17:30 - 18:00					
18:00 - 20:30	Giant Networking Evening at the Glasgow Science Centre with its hundreds of interactive exhibits Open to all All-Energy/Dcarbonise attendees and incorporating the Civic Reception courtesy The Rt Hon The Lord Provost of Glasgow				

Show floor theatres on Wednesday 10 May: 10:30-16:45

- Offshore Wind • Community & Local Energy • Hydrogen and Energy Storage • Future Talent Hub • Research Hub
- Transport decarbonisation • Heat decarbonisation • Built environment decarbonisation. See pages 26-40.

Conference Programme

Well over 500 speakers will be taking part in this 22nd anniversary event. We are awaiting some of the news of our political speakers from both Scotland and south of the border. Meantime our line-up speaks for itself with stakeholders from across the sectors the duo of events serves. Casting your eyes over these, and the next two, pages gives you a flavour of just what we have in store for you over these two packed days.



View Full Programme





| Boisdale 1 **| M2/M3** **| M4** **| Hall 1** **| Alsh 1** **| Alsh 2**

Jacqueline McLaren; The Rt Hon Humza Yousaf MSP, First Minister of Scotland; Professor Jim Skea CBE, FRSE, UK candidate for IPCC Country Chair, Shell UK; Chris Stark, Chief Executive, Climate Change Committee speaking on 'Reliable, Resilient, Zero Carbon Power';

Visit exhibition

Marine Renewable Energy 1
Tidal stream
 >The transition to volume manufacture
 >The route to 1GW deployed (UK and international) achieving the goal
In association with the SUT and ORE Catapult

Transport Decarbonisation
Meet the Minister Scotland's Transport Minister, Kevin Stewart MSP
 Followed by discussion on decarbonisation of HGVs
In association with Transport Scotland
 Sponsored by



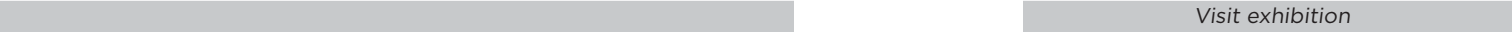
Bioenergy 1
Biomass power and net zero: What is its role?
In association with REA

Innovate UK 1
Supporting innovation in the Energy sector - from SMEs and upwards
 11:00 - 12:00
Clusters Presentation: SNZR and SNZI

12:00 - 13:30
Climate Tech Innovation quick fire pitches and lunch

Decarbonising cities/places
City aspirations: Net zero delivery through coalition
Sponsored by


Meet the Minister Patrick Harvie MSP
Scotland's Minister for Net Zero Buildings, Active and Tenants' Rights
 Followed by **Heat transition to net zero 1**



Marine Renewable Energy 2
Marine and FOW: Consenting: streamlining the process
In association with SUT and ORE Catapult

Industry Decarbonisation 1
Development of Industry Decarbonisation Cluster plans
In association with UKRI

Bioenergy 2
Energy from waste and innovation: Opportunities and threats - what is coming up?
In association with REA

13:30 - 14:00
Strategic Innovation Fund
 14:00 - 15:30
PFER/ Innovate UK EDGE and other opportunities

Review of Electricity Market Arrangements (REMA)
 Where have we got to and what's next?

Heat transition to net zero 2
 The solutions

with

Visit exhibition

Marine Renewable Energy 3
How do we get policy makers to support wave energy
In association with the SUT and ORE Catapult

Industry Decarbonisation 2
Decarbonising the UK: Industrial Clusters
In association with UKRI

Bioenergy 3
What next for Biofuels? Biogas, Heating Fuels and Transport
In association with REA

Finance and Funding
 Investment's role in maintaining momentum

Scaling net zero place delivery through innovation
 Innovate UK

Geothermal
Net-zero heating, cooling & more

Visit exhibition



All-Energy and Dcarbonise

Thursday 11 May

Lomond Auditorium | Forth

| Gala

| Carron

| Dochart

09:00 - 10:30

Day 2 plenary session in the Lomond Auditorium

Meet the Minister: Gillian Martin MSP, Minister for Energy, Scottish Government

Zero emission electricity 100% of the time: How do we deliver a net zero GB electricity system by 2035?

Speakers; Adam Berman, Energy UK; Tom Smout, Aurora Energy Research; Rebecca Barnett, Ofgem; Laura Fleming,

10:30 - 11:00

11:00 - 12:30

Offshore Wind 4
The offshore wind supply chain: Charting a course to success

Sponsored by



The Hydrogen Transition 3
Delivering the Just Transition

In association with SHFCA

Industry Decarbonisation 3
Industry decarbonisation: Widening the conversation

Onshore Wind 3
Investment in, and coordination of new onshore electricity infrastructure

In association with Ofgem

Solar 2
Markets and grid

In association with Solar Energy Scotland

12:30 - 14:00

14:00 - 15:30

Offshore Wind 5
INTOG: A world first!

Sponsored by



Energy Storage 2
Accelerating the shift to low carbon energy storage 2

Onshore Wind 4
Onshore wind and biodiversity: How onshore wind can be part of the solution to both the climate and nature crisis

Showcasing the adoption of the circular economy in wind

In association with NMIS and Strathclyde University

15:30 - 16:00

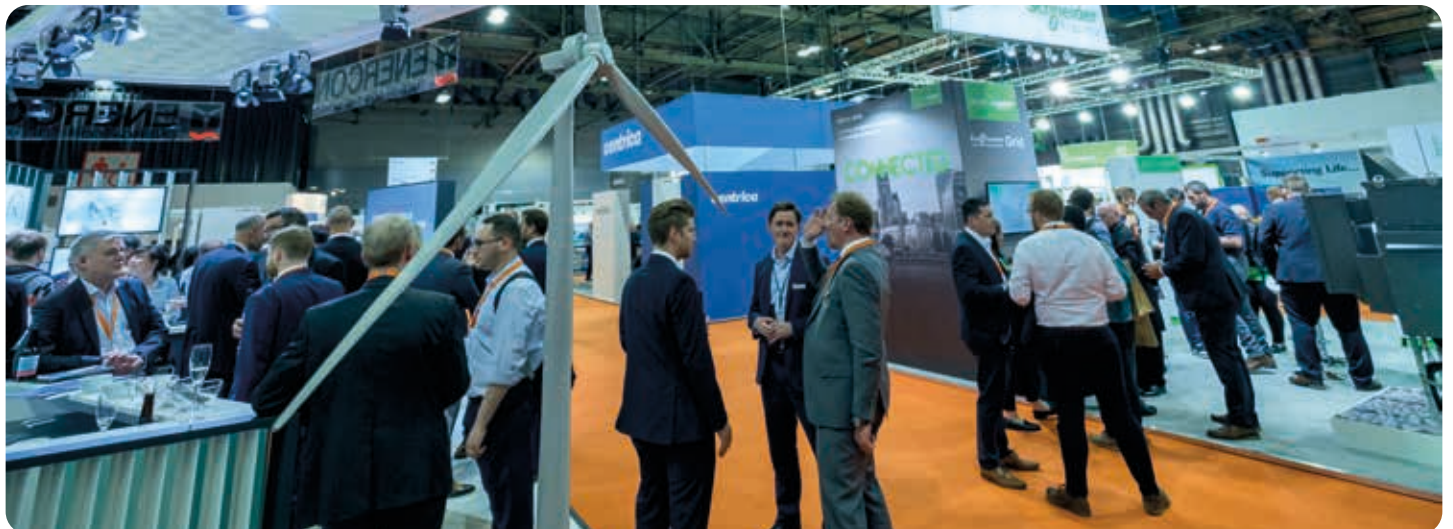
16:00

Show closes

Show floor theatres on Thursday 11 May

10:30-15:30

- Marine renewable energy and floating offshore wind • Innovative Solutions • Hydrogen and Energy Storage • Future Talent Hub • Research Hub • Transport decarbonisation • Heat decarbonisation • Built environment decarbonisation. See pages 26-40.



Conference Programme

| Boisdale 1

| M2/M3

| M4

| Hall 1

| Alsh 1

| Alsh 2

Hitachi UK; and Steve Scrimshaw, Siemens Energy

Visit exhibition

Cyber security in the energy industry

Taking the public with us on the net zero journey they'll enjoy

Offshore Wind What's happening in 2023?
An update from the Marine Scotland Directorate, Scottish Government

Financing Net Zero
Innovate UK

Hydropower Scaling up and deploying the work horse of renewables

In association with BHA

Community and local heat

Organised by Local Energy Scotland

Visit exhibition

Unlocking grid capacity: A connections approach fit for net zero

Digitalisation from production to delivery

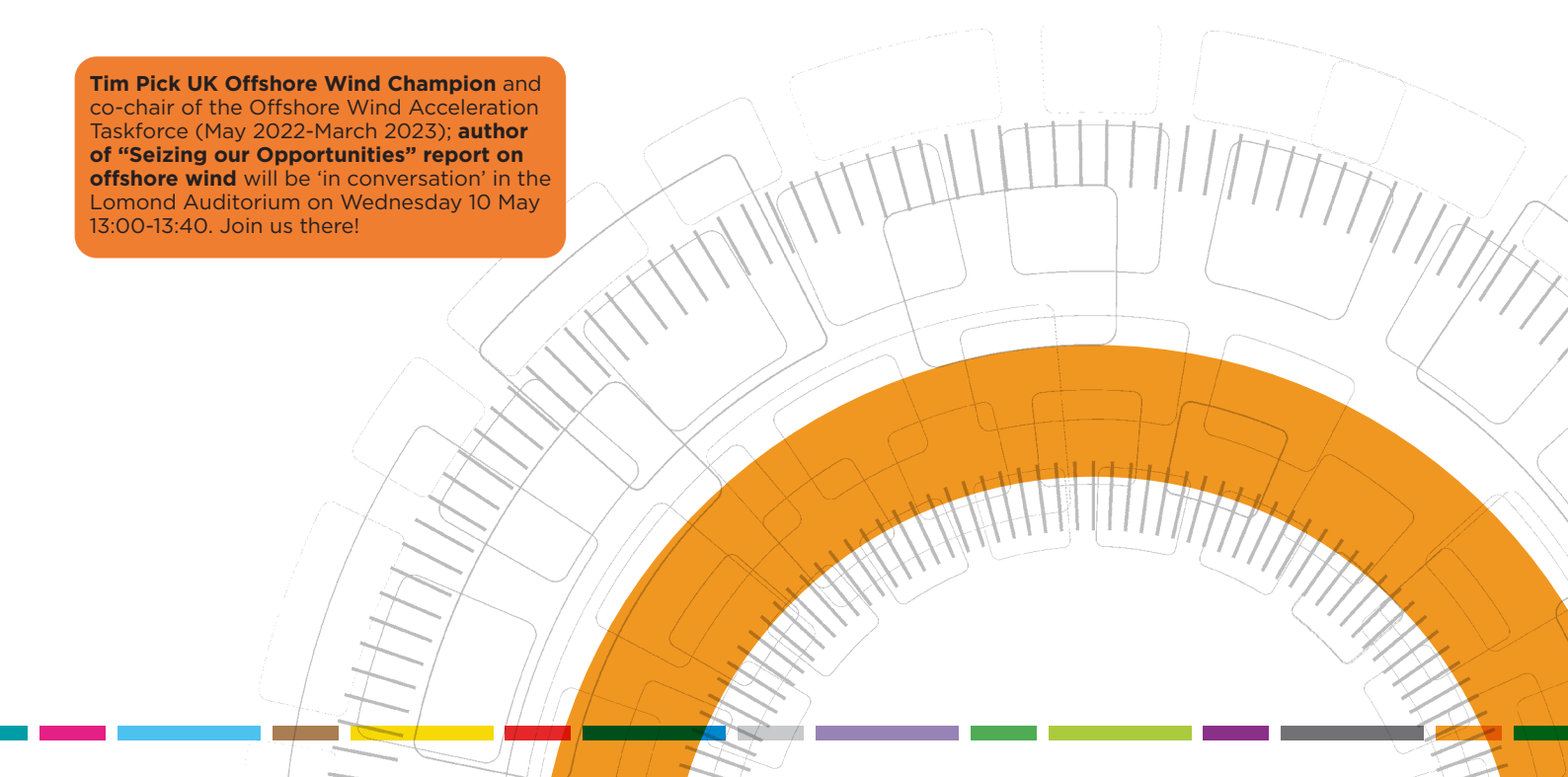
What are the latest trends and future in PPA routes to market for renewable developers and generators to sell their power?

Shared ownership and community benefit

Organised by Local Energy Scotland

Visit exhibition

Tim Pick UK Offshore Wind Champion and co-chair of the Offshore Wind Acceleration Taskforce (May 2022-March 2023); **author of "Seizing our Opportunities" report on offshore wind** will be 'in conversation' in the Lomond Auditorium on Wednesday 10 May 13:00-13:40. Join us there!



The All-Energy and Dcarbonise 2023 Conference Programme

Welcome to the All-Energy and Dcarbonise 2023 conference

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

The Lomond Auditorium, Alsh 1 and 2, Boisdale, Hall 1, Carron, Dochart, M2/3 and M4 conference halls and rooms are all located across the concourse from the exhibition hall. M2/3 and M4 are part of the 'Meeting Academy' and are above the concourse and accessible by lift or stairs; and Gala and Forth are in the SEC Armadillo (these two can be accessed by internal or external routes). The show floor theatres are located in the exhibition hall; and the 'Meet the Developer' Share Fair is within the Power Club also in the exhibition hall.

Updates to the programme after it has gone to press can be found online at www.all-energy.co.uk and on the show App

Main Conference Programme Wednesday, 10 May

Opening plenary session

Lomond Auditorium

09:00-10:30



Chair and Speaker: Keith Anderson, CEO, ScottishPower



The Rt Hon The Lord Provost of Glasgow Councillor Jacqueline McLaren



The Rt Hon Humza Yousaf MSP, First Minister of Scotland



Professor Jim Skea, CBE, FRSE
- UK candidate for IPCC Chair 2023. Professor at Imperial College London. Chair of the Scottish Just Transition Commission



David Bunch,
Country Chair, Shell UK



Reliable, Resilient, Zero Carbon Power - **Chris Stark**, Chief Executive, Climate Change Committee



Councillor **Susan Aitken**, Leader of Glasgow City Council

Offshore Wind Track

Lomond Auditorium

Sponsored by:



Offshore wind 1

Are we still on track to 2030?

11:00 - 12:30

A stimulating 90-minutes will see Colin Innes and his panel consider, and discuss, the remaining key developer risk issues:

- Grid remains extremely problematic and uncertain in many respects. How are developers reacting? Is it harming confidence?
- Habitats regulation still a major barrier on the east coast both in England and Scotland. Is it going to be a barrier to offshore deployment? Energy Bill - is it a silver bullet?
- Is policy matching ambition? UK 50GW by 2030. Scotland 8-11GW by 2030. No clear direction in the draft Scottish Energy Strategy and Just Transition Plan. Is it safe just to leave it to the Iterative Plan Review of the Sectoral Marine Plan 2023? It appears that current knowledge of environmental capacity may drive outcome rather than the key role that offshore wind has to play in decarbonisation. Are we in danger of losing ScotWind momentum?

And also look at the specifics on floating offshore wind; the ScotWind leasing round; INTOG (the subject of a session tomorrow); and, with the Just Transition in mind, ask if the economic benefit will be realised.

Chair: Colin Innes, Partner and Head of Planning, Shepherd and Wedderburn LLP
Speakers:

- **Benj Sykes**, Vice President, Offshore.

Head of Environment, Consenting & External Affairs, Ørsted

- **Gillian Noble**, Offshore Managing Director Development and Operations, ScottishPower Renewables
- **Iain Sinclair**, Executive Director, Renewables & Energy Transition at Global Energy Group
- **Jon Abbatt**, Berwick Bank Development Manager, SSE Renewables
- **Jonathan Cole**, CEO, Corio Generation
- **Sian Lloyd-Rees**, UK Managing Director, Mainstream Offshore
- **Susie Lind**, Managing Director UK - BlueFloat Energy | Renantis Partnership
- **Panel discussion and audience Q&A**

13:00-13:40 Lunchtime conversation:

- **Tim Pick** UK Offshore Wind Champion and co-chair of the Offshore Wind Acceleration Taskforce (May 2022-March 2023); author of "Seizing our Opportunities" report on offshore wind will be 'in conversation'

Offshore wind 2 Investment in, and coordination of new offshore electricity transmission infrastructure

In association with Ofgem

14:00-15:30

Chair: Jourdan Edwards, Deputy Director, Onshore Networks, Ofgem

- Innovative approaches to streamlining offshore networks through the Offshore Transmission Network Review (OTNR) - **Christopher Smart**, Strategic Engagement Lead, Future Offshore Networks, UK Department for Energy Security and Net Zero (DESNZ)
- Multipurpose interconnector - **Nick Pittarello**, Head of Future

- Interconnectors, Ofgem
- Development of new interconnectors - **Philip Sandy**, Director of New Interconnectors, National Grid Ventures
 - Continuing (bigger than ever) opportunities for Offshore Transmission Owner (OFTO) investment - **Sean Payne**, Head of Offshore Transmission Tender Management, Ofgem
 - A supply chain view - **Marko Grizelj**, Business Development & Technical Sales Manager, Siemens Energy
 - Planning consent and offshore renewables - **Zoe Crutchfield**, Marine Directorate - Head of Licensing Operations Team, Scottish Government
 - **Panel discussion and audience Q&A**

Offshore wind 3

The growing pains of offshore floating wind

16:00-17:30

Chair: Maf Smith, Director, Lumen Energy & Environment

Speakers include:

- **Charlene Leppard**, Supply Chain Manager - ScotWind Projects, Shell
- **Tim Stiven**, Innovation and New Ventures (marine), The Crown Estate
- **Charlotte Cochrane**, Stakeholder Engagement Manager for the Salamander Project, Simply Blue
- **Borbala Trifunovics**, Director, Arup Ports & Maritime Leader
- **Panel discussion and audience Q&A**

Hydrogen and Fuel Cells Track

Forth (in the Armadillo)

The Hydrogen Transition 1

Technology & Policy Push

Reducing the delivered cost of hydrogen, including market supply and business models.

In association with the Scottish Hydrogen and Fuel Cell Association (SHFCA)

11:00 - 12:30

Chair: Matthew Knight, Head of Market and Government Affairs, Siemens Energy

Speakers:

- **Molly Iliffe**, Global Head of Hydrogen, Baringa - Can green hydrogen produced in the UK be competitive in the emerging global market?
- **Timo Bollerhey**, Executive Director of HINT.CO GmbH & Managing Director, H2 Global Advisory - Creating early hydrogen market supply and demand
- **Tracy Scott**, Development Director for Green Hydrogen, RES
- **Stuart McKay**, Head of Hydrogen Policy, Scottish Government. Creating the Hydrogen Action Plan
- **Mark Bradley**, Hydrogen Director, ScottishPower Renewables - Scaling Up a Green Hydrogen Market- supporting end users with a low risk transition from high carbon to green Hydrogen
- **David Hogg**, Senior Energy Systems Consultant, Arup - Assessment of Electrolyser Supply Chain in Scotland
- **Nicolas Poblete**, Trade Commissioner of Chile to the UK, ProChile - Embassy of Chile - Chile's large scale green hydrogen production plans
- **Panel discussion and audience Q&A**

Energy storage 1

Accelerating the shift to low carbon energy storage 1

14:00-15:30

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

Speakers:

- **John Egan**, CEO, L'Atelier BNP Paribas
- **Vijay Shinde**, Head of New Technology Solutions, Siemens Energy
- **Maria Bruccoli**, Head of Research and Strategic Innovation, SSE Energy Solutions
- **Duncan Dale**, VP Markets and Optimisation UK and Ireland, Statkraft
- **Malcolm Paterson**, Onshore Business Development Director, ScottishPower Renewables
- **Hugh Maguire**, Senior Project Development Manager, SSE Enterprise
- **Panel discussion and audience Q&A**

The Hydrogen Transition 2

Creating Market Pull

Establishing early markets for hydrogen, building up scale and stability of hydrogen demand

16:00-17:30

Chair: Clare Lavelle, Director - Energy and Advisory Leader North at Arup

Speakers:

- **Mark Griffin**, Head of Hydrogen Market Development, ScottishPower - Green Hydrogen experience from Europe of building at a commercial scale, what are the lessons for the UK
- **Irina Bonavino**, Hydrogen Specialist, Scottish Enterprise - Chicken and Egg: producing and using hydrogen in Scotland
- **Eilidh Graham**, Project Marketing and Customer Manager for H100 Fife, SGN - H100 Fife - building consumer acceptance of hydrogen for heat
- **Nick O'Neill**, Director, SLR Consulting - Integrated Hydrogen Salt Storage for Irish Offshore Wind Developments (HYSS)
- **Dr Zac Cesaro**, Programme Manager, Siemens Energy - Ammonia cracking- using ammonia to deliver hydrogen
- **Panel discussion and audience Q&A**

Energy Systems Track

Gala (in the Armadillo)

Energy Systems 1

Is there an end to the gas security crisis?

11:00-12:30

Chair: Paul Dodds, Professor of Energy Systems, University College London

Speakers:

- **Mike Bradshaw**, Professor of Global Energy, University of Warwick
- **Lawrence Slade**, Chief Executive Officer, Energy Networks Association
- **Johanna Cowan**, Director of Energy Security and Resilience, UK Department for Energy Security and Net Zero (DESNZ)
- **Panel discussion and audience Q&A**

Energy Systems 2

Energy security and net zero: the roles of geopolitics and UK offshore resources

14:00-15:30

Chair: Mike Bradshaw, Professor of Global Energy, University of Warwick

Speakers:

- **Paul Dodds**, Professor of Energy Systems, University College London

- **Gavin Bridge**, Professor, University of Durham
- **Mark Wilson**, HSE & Operations Director, Offshore Energies UK (OEUK)
- **Madhubanti 'Madhu' Basu**, Business Development Manager, Siemens Energy
- **Ulf Nahrath**, Vice President UK Energy Transition & Infrastructure, Shell
- **Panel discussion and audience Q&A**

Energy Systems 3

Electricity supply resilience

1600-1730

Chair: Professor Keith Bell, Scottish Power Professor of Future Power Systems, University of Strathclyde

Speakers

- **Scott Mathieson**, Network Planning & Regulation Director, SP Energy Networks
- **Nick Winser CBE**, Commissioner, National Infrastructure Commission
- **Niall McDonald**, Chief Engineer, Ofgem
- **Lissa Stewart**, Head of Operations Support, Resilience Division, Scottish Government
- **Cara Labuschagne**, Lead Analyst - Resilient Infrastructure, Climate Change Committee
- **Panel discussion and audience Q&A**

Solar; and Onshore Wind

Carron

Solar 1

Planning and Environmental/Social Guidance (Natural Capital and Biodiversity)

In association with Solar Energy Scotland

11:00-12:30

Well cultivated solar farms with a focus on biodiversity can support pollinators, improved soil health, conservation grazing, fruit trees and hedgerows. With proper policy support, solar farms could supply clean, reliable energy to Scotland's communities whilst helping to increase biodiversity and deliver a circular economy.

Integrating these types of solar farms into Scotland's biodiversity and circular economy goals will require forward thinking and preparation from local authorities and decisions makers in the planning system. The recent National Planning Framework 4 recognised the potential of renewable energy to act as stewards of Scottish land, giving "substantial weight" to appropriate renewable development on green belt land. But does the NPF 4 provide the flexibility and imagination needed to reach Net Zero?

This panel examines how solar farms lead the renewable sector in responsible stewardship and asks if the NPF4 is radical enough for the climate crisis.

Moderator: Emily Rice, Policy Analyst and Executive, Solar Energy Scotland Presentation:

- **Thomas McMillan**, Chair, Solar Energy Scotland, and Director of Energy, Renewables and Infrastructure, Savills

Panel:

- **Stefano Gambro**, Managing Director, Ennoviga Solar
- **Craig Whelton**, Partner, Burges Salmon
- **Kate Hopper**, Policy Manager for Climate

Change, NFU Scotland

- **Panel discussion and audience Q&A**
Onshore wind 1
An Onshore Wind Sector Deal for Scotland: Forging the future
14:00-15:30

Negotiations are underway between the Scottish Government and industry to establish a Sector Deal that will shape the future of our Onshore Wind sector. This panel brings together some of the key people involved in the negotiations to share their expert views on what the deal is expected to deliver.

Chair: Morag Watson, Director of Policy, Scottish Renewables

Speakers:

- **Ragne Lowe**, Deputy Director Onshore Electricity Policy, Scottish Government
- **Barry Carruthers**, Managing Director, Onshore UK & Ireland, ScottishPower Renewables
- **Lesley McNeil**, Head of Communications and Communities, Muirhall Energy
- **Marcus Trinick KC**, Lawyer
- **Panel discussion and audience Q&A**

Onshore wind 2

Turbine transportation: Pinch points and access rights

16:00-17:30

Due to a trend for larger turbines on new onshore wind projects and repowering and also increased competition for sites pushing developers to increasingly remote locations, one of the emerging EDIs for onshore wind developers is securing transportation routes to site and dealing with the challenge of securing suitable land rights in competition with other developers, this session looks at current industry practice, issues with securing rights and discusses some possible solutions. In particular the panel will discuss:

- A technical overview of turbine transportation requirements and challenges
- An overview of land rights and legal structures used to secure the transportation route
- Challenges around securing pinch point land, in particular:
 - The interface between private land and adopted roads and challenges around determining whether oversail land is adopted
 - Dealing with multiple land owners and the need to secure rights quickly and efficiently
 - Sharing pinch points and cooperation between developers
 - Landowner requirements and commercial expectations
 - Fundability
- Possible alternatives or solutions, including:
 - Use of and applicability of Compulsory Purchase Orders
 - Whether enabling legislation would be appropriate to support pinch point access without private land rights
 - Use of road adoption to make pinch point available for others

Chair: Richard Turnbull, Partner, Shepherd and Wedderburn LLP

Speakers:

- **Fraser Mitchell**, Planning and CPO Lawyer, Shepherd and Wedderburn
- **Peter Robinson**, Head of Finance & Construction, North of Scotland, Energiekontor
- **Fraser Anderson**, Head of Onshore Wind, Black & Veatch
- **Lesley Kelly**, Partner, Energy & Renewables, Bidwells
- **Mark Richardson**, Senior Policy Manager, Scottish Renewables and Head of Abnormal Loads Legislation Group
- **Panel discussion and audience Q&A**

Green jobs; and Supply chain decarbonisation stream

Dochart

Workforce: Green jobs, skills and training

11:00-12:30

Chair: Tom Hopkinson, CEO, Taylor Hopkinson | Powered by Brunel

Speakers:

- **Dan Simpson**, Head of Human Resources for Siemens Energy UK & Ireland
- **Chris Clark**, Director, Emtec Energy
- **Nia Lowe**, SP Energy Networks Strategic Workforce Renewal Manager
- **Michael Love**, Head of Skills Policy, OPITO
- **Peter Tipler**, Managing Director, X-Academy
- **Ian Rippin**, CEO, MCS
- **Ellen Tomlinson**, Strategic Development Leader, Wise Group
- **Panel discussion and audience Q&A**

Working for Net Zero- ensuring good quality and sustainable jobs

14:00-15:30

Joint Centre for Energy Policy (CEP) and Future Energy Skills (FES) programme event

The promise of green jobs over the coming decades as the UK decarbonises its economy is high. The UK Government's Net Zero Strategy talks about 'up to 440,000 jobs across net zero industries in 2030.' However, this is a gross figure and the question remains around how we deliver on this promise in the face of current labour market pressures, wage competition, skills shortages and the trade-off between desired real wage growth and potential inflationary pressures?

This event, hosted by the Centre for Energy Policy at the University of Strathclyde and the Future Energy Skills programme, will bring together representatives from Government, industry, trade unions and academics. It will explore what action is required to ensure the UK's transition to Net Zero preserves and supports good quality, sustainable jobs and career paths.

Chair: Alf Young, Columnist, The Times

Speakers:

- **Lorna Slater MSP**, Minister for Green Skills, Circular Economy and Biodiversity
- **Elaine Ellis**, Skills Planning Manager Construction, Skills Development Scotland
- **Andrew Middleton**, Managing Director, British Gas Net Zero Ventures
- **Gary Smith**, General Secretary, GMB and Co-Chair FES Board
- **Professor Karen Turner**, Director, Centre

for Energy Policy

- **Panel discussion and audience Q&A**
Supply chain decarbonisation
16:00-17:30

Part 1

16:00-16:45

The Powering Net Zero Pact

The Powering Net Zero Pact ('the Pact') is an initiative created by SSE with 10 other founding partners as a legacy of COP26; it now has 21 member companies. It brings together different companies across all tiers of the power sector- including civils, shipping, renewables, electrical engineering and others- that are committed to a fair and just transition to net zero carbon emissions.

The Pact includes five areas of ambition, five shared commitments and five topics for collaboration, which together encourage the delivery of common ambitions for a sustainable future.

Chair: Laura Cooper, Supply Chain Sustainability Lead, SSE Renewables

Speakers

- **Ashley Oates**, Head of Environment and Sustainability, Balfour Beatty
- **Sarah Handley**, Head of Sustainability and Environmental Governance, Siemens Energy
- **Tim Balcaen**, QHSE Manager, Smulders
- **Panel discussion and audience Q&A**

Part 2

16:45-17:30

Part 2: The Scottish Business Climate Collaboration and Business in the Community

Large organisations across Scotland have come together to support the wider supply chain ecosystem and act as a collective to drive down emissions. Two such initiatives from the Scottish Business Climate Collaboration and Business in the Community are working directly with SMEs to achieve this.

The Climate Action Hub is a free e-learning resource, developed by Scottish Business Climate Collaboration (SBCC) partners and delivered by Zero Waste Scotland, to help businesses understand the climate crisis, measure their impact and take action to reduce emissions. The Hub features resources, including 12 e-learning modules on topics ranging from entry-level climate science to carbon emissions related to business practices. Users of the platform will also have free access to a dashboard to track carbon literacy across their organisation and the tools to calculate their own carbon baseline and develop a carbon reduction plan.

Find out more and join the Climate Action Hub: sbcc.group. Thomas Billam from Zero Waste Scotland will share his insight from helping to develop the tool and using it to support a whole host of SMEs.

Business in the Community (BITC) leads a movement to create a fair and sustainable world. Working closely with Be the Business and supported by Scottish Enterprise, BITC will be facilitating four interactive workshops to help businesses identify and prioritise

work on climate action. Workshops will run from the 1-22 June. Alongside the four workshops, BITC invites businesses to join mentored peer learning groups to help put new knowledge into practice and build momentum in your organisation. Joe Rawlinson from BITC will share his experiences leading the programme and Andrew from Emtec Group will provide insight as a previous BITC workshop cohort member.

Chair: Kate McGeoch, Senior Environment Manager, ScottishPower

Speakers include

- **Thomas Billam**, Partner (Business Support), Zero Waste Scotland
- **Joe Rawlinson**, Environmental Advisor, Business in the Community
- **Andrew Hastings**, Sustainability Coordinator, Emtec Group
- **Panel discussion and audience Q&A**

Marine renewables stream (including Marine and FOW consenting)

In association with the Society for Underwater Technology and the Offshore Renewable Energy Catapult

Boisdale 1

Session 1

Tidal stream

11:00-12:30

Sue Barr, Chair, UK Marine Energy Council will chair a two part session with two themes and one aim - maximum inter-panel discussion and answering your questions.

Part 1: The transition to volume manufacture:

Tidal stream has support in central and devolved Government. Whilst enduring support in CfD Allocation Rounds is not assured the sector must be bold to capitalise on its recent achievements. What steps should the sector be taking now to move from developing one offs to working with the supply chain to step up production?

Part 2: The route to 1GW deployed (UK and Internationally): Achieving the goal:

The Marine Energy Council has established a 1GW by 2035 target for wave and tidal but this requires ongoing Government support for deployment through maintaining a ringfence for tidal stream energy and introducing a wave energy ringfence. What steps should the marine energy sector be looking at to prepare sites and address the challenges to accelerate deployment?

Sue Barr's panellists:

- **Keith Murray**, Chief Commercial Officer, QED Naval and Tocardo Turbines
- **Andrew Scott**, CEO and Director, Orbital Marine Power
- **Andy Baldock**, Director Baldock Energy
- **Teo van der Kammen**, Technical Manager, ORE Catapult
- **John Jenkins**, Commercial Director, Morlais Tidal Energy
- **Drew Blaxland**, CEO, Proteus Marine Renewables, Director Normandie Hydroliennes
- The Crown Estate (speaker tbc)
- **Panel discussion and audience Q&A**
- **Award of the 2023 Society for Underwater Technology (SUT) Lennard-**

Senior Memorial Prize

Marine renewables stream (including Marine and FOW consenting)

In association with the Society for Underwater Technology and the Offshore Renewable Energy Catapult

Session 2

14:00-15:30

Marine and Floating Offshore Wind consenting

Neil Farrington, Strategic Offshore Development Manager, Celtic Sea Power will chair a three-part discussion embracing Marine and FoW consenting: How to streamline the process: Whilst it takes some three years to build and launch an oil and gas platform, it takes some 10 years to achieve first energy generation for marine and floating wind systems. Why does it take so long and what must we challenge with policy and planning to speed up deployment without shortcutting necessary environmental considerations?

Part 1: Hard and soft constraint mapping for the strategic resource area mapping in the Celtic Sea

Part 2: Environmental impacts and evidence gaps associated with floating offshore wind turbines

- Discussion on the research gaps and opportunities for innovative monitoring technologies in the offshore marine environment

Part 3: Understanding and minimising environmental impact

Neil Farrington will draw on the expertise of panellists:

- **Marc Murray**, FLOW Development Director, Cierco Energy
- **Ben Huskinson**, Director Development Services, Simply Blue Group
- **Sion Roberts**, Marine Consents Manager, The Crown Estate
- **Chris McConville**, Head of Commercial, Floating Power Plant
- **Professor Beth Scott**, University of Aberdeen

Presentations will be short and the inter-panel discussion long and stimulating; and once again your questions will be answered

Marine renewables stream (including Marine and FOW consenting)

In association with the Society for Underwater Technology and the Offshore Renewable Energy Catapult

Session 3

16:00-17:30

How do we get policy makers to support wave energy?:

Wave energy is more consistent and predictable than solar or wind and the Marine Energy Council believe it could provide up to 20% of electricity demand. In addition, its harmonious relationship with wind means that wave energy could support a more cost-effective and efficient energy system. However, wave energy is still waiting in the wings looking for a route to market. What are the practical steps policy makers and developers can do together to help create those market

conditions allow wave energy to take off and flourish.

Chair: Professor Deborah Greaves OBE, Professor in Ocean Engineering, University of Plymouth

She will draw on her panellists' knowledge to ensure a thought provoking session

Speakers:

- **Tim Hurst**, Managing Director, Wave Energy Scotland
- **Dr Cameron McNatt**, Managing Director, Mocean Energy
- **Claire Lazarides**, UK Project Operations, AMOG
- **David Findlay**, ORE Catapult
- **Marcelle Askew**, VP Business Development, Seabased Group
- **Sam Leighton**, CEO, Bombora Wave Power (tbc)
- **Anders Jansson**, Head of Business Development, CorPower Ocean AB
- **Panel discussion and audience Q&A**

Transport; and industry decarbonisation sessions

M2/M3

Transport decarbonisation

11:00-12:30

Sponsored by Shell U.K.



Held in association with Transport Scotland

Chair: Karen Geekie, Transport Scotland Team Leader - Zero Emission Mobility Accelerator

Meet the Minister

- **Kevin Stewart MSP, Minister for Transport, Scottish Government** - Scene setting address

Scene setting address by

- **David Bunch**, Country Chair, Shell UK

Panel discussion on Decarbonising Heavy Goods Vehicles (HGVs)

- Speakers include:
- **Mark Griffiths**, Head of Hydrogen Market Development, ScottishPower
- **Shirley Robertson**, Head of Strategic Planning and Sustainability, SSE
- **Colin Smith**, Chief Executive, Scottish Wholesale Association
- **Chris Ashley**, Policy Lead - Environment and Vehicles, Road Haulage Association
- **Garry Birmingham**, Programme Director for Decarbonisation and Delivery, First Bus

Industry decarbonisation 1

UKRI's Industrial Decarbonisation Challenge

- Development of Industry Decarbonisation Cluster plans

14:00-15:30

In association with UKRI

Representatives from UKRI's Industrial Decarbonisation Challenge cluster plan projects will share an overview of the blueprints that have been developed to achieve net zero in six of the UK's industrial clusters. Through the collaboration of industry, academia and other stakeholders these plans detail each clusters unique path to net zero and economic growth and jobs that will be created through their implementation.

Chair: Bryony Livesey, Director, Industrial Decarbonisation Challenge, UKRI

Topics:

- **Mark Hughes**, Operations Manager, NECCUS - Scotland: Development of a plan to decarbonise Scotland's industries - Scotland Cluster
- **Matthew Rhodes**, Managing Director, Camirus - Black Country: An industrial cluster without a CCS network
- **Laura Wood** - South Wales: Equality, diversity and inclusion (EDI)
- **Chris Robinson** - Teesside - North West: Investment North West
- **Peter Wilkie** - Skills - Humber
- **Panel discussion and audience Q&A**

Industry decarbonisation 2 UKRI's Industrial Decarbonisation Challenge

- Decarbonising the UK: Industrial Clusters: Infrastructure Projects

16:00-17:30

In association with UKRI

Join the UKRI's Industrial Decarbonisation Challenge (IDC) and representatives of deployment projects as they discuss their progress in the development of feasibility studies for the deployment of decarbonisation technologies, including hydrogen and carbon capture, which will actively reduce emissions across the UK when live. The IDC's world-leading approach to incentivising innovation through investment and facilitating collaboration has resulted in an advanced portfolio of decarbonisation projects which means the UK is on track to deliver four decarbonised clusters by 2030 and a net zero cluster by 2040.

Chair: Bryony Livesey, Director, Industrial Decarbonisation Challenge, UKRI

Topics:

- **Jonathan Briggs** - Humber Zero - VPI
- **Jenny Sutcliffe** - Humber Zero - Philips 66
- **Ben Tze Kek**, Deputy Managing Director - NEP bp - Teesside
- **Michael Foley** - Solent
- **Marian Garfield** - North West - Hanson
- **Dr Angela Needle** (tbc) - North West - Cadent
- SSE Representative - (tbc)
- **Charlie Youngs** - Scotland
- **Panel discussion and audience Q&A**

Bioenergy stream

M4

Bioenergy 1

11:00-12:30

Biomass Power and Net Zero: What is its Role?

Chair: Mark Sommerfeld, Head of Power and Flexibility, REA

- **Mark Sommerfeld**, Head of Power and Flexibility, REA - Biomass policy and biomass strategy update
- **Greg Williams**, Head of Regulation and Procurement, Bioenergy Infrastructure Group)
- **Kevin Lindegaard**, Director, Envirocrops and Crops 4 Energy
- **Bruce Heppenstall**, Plant Director, Drax
- **Patricia Thornley**, Director, Supergen

Bioenergy Hub

- **Panel discussion and audience Q&A**

Bioenergy 2

14:00-15:30

Energy from Waste and Innovation- Opportunities and Threats, what is coming up?

Chair: Mark Sommerfeld, Head of Power and Flexibility, REA

- **Karl Smyth**, Director of External Affairs and Strategic Policy, Enfinium
- **Chris Williams**, Policy Lead: Waste Industrial Carbon Capture, UK Department of Energy Security and Net Zero (DESNZ)
- **Aidan Robson**, Waste Management Policy Team Leader, Scottish Government - Update on the Scotland review of Energy from Waste update
- **Steven Don**, Head of Contracts Scotland, Viridor
- **Adam Clarke**, Assistant Group Manager (Waste Management & Recycling), Glasgow City Council
- **Panel discussion and audience Q&A**

Bioenergy 3

16:00-17:30

Where next for Biofuels? Biogas, Heat Fuels and Transport

Chair: Mark Sommerfeld, Head of Power and Flexibility, REA

- **Amna Bezanty**, Strategy Lead, KEW Technology
- **Lizzie German**, Investment and Technology Manager, Dimeta
- **Andrew Welfe**, Bioeconomy Sustainability Indicator Model, Supergen Bioenergy Hub
- **(Speaker tbc)** CNG Services
- **Carl Gurney**, Renewable Energy Director, Marsh Commercial
- **Panel discussion and audience Q&A**

Innovate UK; and Finance and Funding stream

Hall 1

Innovate UK Session

Supporting innovation in the Energy sector- from SMEs and upwards

11:00-15:30

Organised by Innovate UK

11:00-12:00 Clusters Presentation: Scottish Net Zero Roadmap (SNZR) and Scotland's Net Zero Infrastructure (SNZI)

Charlie Youngs, Head of Acorn CCS, Storegga

Dr Iain Weir, Managing Director, Optimat

12:00-13:30 **Climate Tech Innovation quick fire pitches and lunch - An opportunity to hear from a selection of innovators supported by Innovate UK, their propositions, and the connections they are looking to make**

13:30-14:00 **Strategic Innovation Fund (SIF) presentations**

14:00-15:30 - **PFER/Innovate UK EDGE and other opportunities**

Finance and funding

16:00-17:30

Investment's role in maintaining momentum

Chair: Andrew Smith, Partner,

Greenbackers Investment

- **Ivan McKee MSP**
- **Keith Lawton**, Strategic Growth Director, WSP- founder member of Financing Technology to Net Zero - and bringing innovation into the built environment
- **Sarah Melaney** of Withers- involved day to day in VC investment into clan technology and close to the impacts on the sector of the SVB collapse
- **Conall McGinley**, UK National Contact Point for Horizon Europe Energy, Innovate UK- one of the most significant interventions into the climate technology sector
- **Sarah Merrick**, Founder and CEO of Ripple Energy, a leader bringing an innovative business model to bear on the energy sector
- **Gillian King**, Business Development (Growth) Director, Net Zero Technology Centre (NZTC)
- **Panel discussion and audience Q&A**

Decarbonising cities; REMA; and Net Zero place delivery

Alsh 1

Decarbonising Cities/Places

11:00-1:30

Sponsored by



City aspirations - net zero delivery through coalition

Making a difference with the Edinburgh Climate Compact and the Sustainable Glasgow Charter

The challenges remain in relation to place based decarbonisation but a coalition of the willing is trying to effect change in their cities. Please join us as we:

- give an overview of the place-based challenges facing cities;
- describe how and why (i) Edinburgh developed the Climate Compact and (ii) Glasgow created the Sustainable Glasgow Charter and progress to date;
- listen to Compact and Charter members describe their experience and why this is worthwhile; and
- make the call to action across Scotland and the UK to mobilise as Edinburgh and Glasgow have done.

This session is for all businesses and organisations (public, private and third sectors) who want to accelerate climate action and impact in their city- all welcome!

Speakers:

- **Clare Foster**, Head of Clean Energy Shepherd and Wedderburn LLP and lead for the Edinburgh Climate Compact
- **Guy Jefferson**, COO SP Energy Networks and lead for the Sustainable Glasgow Charter)
- **Jamie Brogan**, Head of Climate Partnerships at Edinburgh Climate Change Institute
- **Ben Carter**, Account Director from Vattenfall Heat - member of the Edinburgh Climate Compact member)
- **Alan Hendry**, Director of Sustainability, Mott McDonald
- **Panel discussion and audience Q&A**

Review of Electricity Market Arrangements (REMA): Where have we got to and what's next?

14:00-15:30

Chair: Kersti Berge, Director of Energy and Climate Change, Scottish Government
Speakers:

- **Simon Dawes**, Joint-Head of REMA Policy, UK Department for Energy Security and Net Zero (DESNZ)
- **Madelaine Brooks**, Energy Markets and Regulation Lead, Octopus Energy
- **Professor Keith Bell**, Scottish Power Professor of Future Power Systems, University of Strathclyde
- **Kathryn Emmett**, PSL Counsel, Slaughter and May
- **Angus MacRae**, Head of Electricity Strategy, SSE
- **Maxine Frerk**, Associate, Sustainability First
- **Panel discussion and audience Q&A**

Scaling net zero place delivery through innovation

- How places are learning from their clean energy transitions

16:00- 17:30

Organised by Innovate UK

Innovate UK has run a number of programmes such as Future Cities and Prospering from the Energy Revolution (PFER) which have sought to deliver change by taking a place-based approach to challenges.

These programmes have revealed that although many technologies exist to deliver a transition to net zero. We must overcome a whole series of non technical barriers in order to do this at pace and scale, and to unlock the £100bns market opportunity that the transition to net zero can offer. Innovate UK's Net Zero Living Programme is working with and supporting Local Authorities to find solutions to these non-technical barriers which include areas such as public engagement, regulation and policy, financing, skills and capacity to name but a few.

Come along and hear about Innovate UK's net zero living programme through innovations and experiences from projects in this space and how unlocking these non-technical barriers will help to accelerate transitions to net zero.

Chair: Kara Cartwright, Innovation Lead, Innovate UK

Speakers:

- **Ruth Harris**, Zero Carbon Project Manager, Oxford City Council - FutureFit One Stop Shop (FOSS) project
- **Ian Johnstone**, Director, Aquatera - Orkney Pathfinder Project
- **Divindy Grant**, Team Leader for Climate Change and Sustainable Development, Perth and Kinross Council - Dialogue to Speed Transition to Net Zero Perth & Kinross
- **Panel discussion and audience Q&A**

Heat transition to Net Zero Aish 2

Heat transition to Net Zero 1

11:00-12:30

Chair: tbc

This session organised by the Scottish Government highlights four key topics

- Designand role of regulation in driving heat decarbonisation
- Financing the Heat Transition
- The Green Heat Economy
- Awareness of The Heat Transition

11:00-11:20

Meet the Minister

- **Patrick Harvie MSP, Minister for Zero Carbon Buildings, Active Travel and Tenants' Rights** - Keynote address and audience Q&A

11:20 -12:30 Panel session

The Government's key topics will be woven into presentations by:

- **Octopus Energy Services** - Future Technology Evangelist, Phil Steele will speak of the rapid and effective roll out of heat pumps and the close relationship Octopus has with Distribution Network Operator UKPN
- **Scottish Enterprise** - Dr Sharon McKendry, Head of Low Carbon Transition will speak about the Green Heat opportunity from the economic opportunity and supply chain side. She will cover the Green Heat Innovation Support Programme as well as some of the other support and initiatives aimed at companies.
- **Energy Saving Trust Scotland** - Pilar Rodriquez, Green Heat Installer Engagement Programme Manager at EST talking about the supply chain from a skills perspective; and also covering areas of support that EST provides both to businesses and to homes.
- **Scottish Government** - Amy Tickell, Head of Heat in Buildings Investment Team, will be turning the spotlight on projects from their capital funding programmes, demonstrating the range of funding opportunities
- **Panel discussion and audience Q&A**

Heat transition to Net Zero 2

Heat transition to Net Zero: The solutions

14:00-15:30

Chair: Dave Pearson, Director, Star

Renewable Energy

Speakers:

- Residential energy efficiency and potential contribution to economic growth - **Antonios Katris**, Research Fellow, Centre for Energy Policy
- The municipal role in district heating developments – an international perspective - **Morten Jordt Duedahl**, Business Development Manager, Danish Board of District Heating (DBDH)
 - o **Duncan Smith**, Senior Energy & Sustainability Manager, River Clyde Homes (tbc)
- How we're going to do it:
 - o **Billy McFadyen**, SEC's Director of Finance & Development on exploring options for decarbonising the venue we are in, and the surrounding campus
- The future of Heat: Innovation unlocking the way to net zero - **Eileen Anderson**, Smart Heat Commercial Development Manager, ScottishPower
- **Panel discussion and audience Q&A**

Heat transition to Net Zero Session 3 Geothermal Net Zero heating, cooking and more

16:00-17:30- 10 May

Chair: David Townsend, Managing Director, TownRock Energy

Speakers:

- **Karl Farrow**, CEO, CeraPhi
- **Matthew Black**, Business Development Scotland, Kensa Contracting
- **Gioia Falcone**, Rankine Chair, Professor of Energy Engineering, Glasgow University
- **David Walls**, Senior Geothermal Geologist, TownRock Energy
- **Alison Monaghan**, British Geological Survey
- **Caroline Bragg**, Director of Policy and Research, The ADE
- **Panel discussion and audience Q&A**

18:00-20:00

Head to the Glasgow Science Centre for the Giant Networking Evening, incorporating the Civic Reception generously hosted by The Rt Hon The Lord Provost of Glasgow, and sponsored by Siemens Energy.

- Follow the sound of our Piper out of the exhibition hall and the SEC buildings and past the hotel, then over the footbridge. The Glasgow Science Centre is on your right on the other bank of the River Clyde

Main Conference Programme

Thursday, 11 May

Day 2 Plenary session

Lomond Auditorium

09:00-10:30

Zero emission electricity 100% of the time: How do we deliver a net zero GB electricity system by 2035?

Chair: Dr Simon Harrison, Head of Group Strategy, Mott MacDonald

09:00-09:20

Meet the Minister

- **Keynote address by Gillian Martin MSP, Minister for Energy, The Scottish Government**
- **Audience Q&A**

Panel session 09:20-10:30

Speakers

- **Adam Berman**, Deputy Director, Energy UK
- **Tom Smout**, Senior Associate, Aurora Energy Research
- **Rebecca Barnett**, Director of Networks, Ofgem
- **Laura Fleming**, CEO, Hitachi UK
- **Steve Scrimshaw**, Vice President, Siemens Energy UK & Ireland

Offshore Wind 4

Offshore wind stream

Lomond Auditorium

Sponsored by



11:00-12:30

Offshore wind supply chain: Charting a course to success

Chair and scene setting speaker: Tim Pick - UK Offshore Wind Champion and co-chair of the Offshore Wind Acceleration Taskforce (May 2022-March 2023); author of "Seizing our Opportunities" report on offshore wind acceleration

Speakers:

- **Rachel Armitage**, Head, Offshore Wind Investments & Infrastructure, Renewable Electricity Directorate, UK Department for Energy Security and Net Zero (DESNZ)
- **Scott Hamilton**, Offshore Wind Strategy: New Markets - Xodus
- **Gillian Morrison**, Supply Chain Development Manager, Crown Estate Scotland
- **Eamon Hayes**, Head of Procurement and Commercial - Offshore, SSE Renewables
- **Alan MacLeay**, Engineering Director, Seaway 7
- **Andrew Duncan**, Renewables Director, North Star Shipping
- **Panel discussion and audience Q&A**

Offshore Wind 5

INTOG: A world first!

14:00-15:30

On 24 March 2023 Crown Estate Scotland (CES) announced the results of the world's first leasing round designed to enable

offshore wind energy to directly supply offshore oil and gas platforms.

INTOG (Innovation and Targeted Oil & Gas) leasing aims to attract investment in innovative offshore wind projects in Scottish waters, as well as help decarbonise North Sea operations.

The INTOG process allowed developers to apply for seabed rights to develop offshore wind projects that either reduce emissions from the North Sea oil and gas sector - by supplying renewable electricity directly to oil and gas infrastructure (TOG) - or consist of small-scale (IN) innovative projects of 100MW or less. This distinctive offshore wind leasing is different to any other previously carried out in the UK or in the world.

In this session not only will you hear the background to INTOG and from the organisations that played key roles, but from successful applicants who have been offered initial agreements.

Chair and speaker : Sarah Knight, Development Manager (Leasing), Crown Estate Scotland

Speakers:

- **Carlo Procaccini**, Chief Technical Officer, North Sea Transition Authority (NSTA)
- **Graeme Rogerson**, Head of Net Zero Technology, Net Zero Technology Centre (NZTC)
- **Andrew Macdonald**, Director of Offshore Wind Development and Operations, ORE Catapult
- **Thibaut Cheret**, Wind and Renewables Manager, Offshore Energies UK (OEUK)

Plus

- Successful applicants
 - TOG - **Alexander Quayle**, Project Director, Flotation Energy
 - IN - **Huw Bell**, Project Director, Simply Blue (Salamander project)
 - IN - **Adele Brownlie**, Project Manager, bp Offshore Wind
- **Panel discussion and audience Q&A**

Hydrogen and Energy Storage Stream Forth (in the Armadillo)

The Hydrogen Transition 3 - Delivering the Just Transition

Markets, jobs, skills, environment and sustainability perspectives
In association with SHFCA

11:00-12:30

Chair: Professor Karen Turner, Director, CEP / University of Strathclyde

Speakers:

- **Joanne Allday**, Strategy and Business Development Manager, Port of Cromarty Firth. Hydrogen opportunities with Freeports
- **Martin McCormack**, Energy Transition

Zone. Repurposing the oil and gas energy supply chain

- **David Amos**, Plus Zero. Building public acceptance with Green H2 powered Festivals
- **Fiona Landy**, Hydrogen Accelerator. Supply chain transition- the Scottish H2 Train project
- **William Mezzullo**, Head of Hydrogen, Centrica
- **Panel discussion and audience Q&A**

Energy storage 2

Accelerating the shift to low carbon energy storage 2

14:00-15:30

Chair: Dr Grant Wilson, University of Birmingham

Speakers

- **Ian Ellerington**, Technology Transfer Director, The Faraday Institution- Overview on the innovation process
- **Charlie Blair**, Managing Director, Gravitricity - A Gravitricity update
- **Katriona Edlmann**, Chancellor's Fellow in Energy and Senior Lecture, University of Edinburgh - Update on geological storage
- **Paul Howdle**, Chief Commercial Officer, Allegro Energy Pty - The Holy Grail of EV energy storage and Long Duration Energy Storage (LDES): Water based supercaps and flow batteries
- **Andrew Hughes**, Media and PR Manager, ILI Group - An update on ILI's pumped storage plans
- **Panel discussion and audience Q&A**

Gala (in the Armadillo)

Industry decarbonisation 3

11:00-12:30

Industry decarbonisation: Widening the conversation

Chair: Professor Stuart Haszeldine, Professor of Carbon Capture and Storage, University of Edinburgh

Speakers:

- CCS and CCUS in the spotlight - **Ruth Herbert**, CEO, Carbon Capture and Storage Association
- Crushing silicate rocks could trap significant CO₂ - **Professor Becky Lunn**, Head of the Centre for Ground Engineering and Energy Geosciences at University of Strathclyde
- Challenges and opportunities for dispersed site decarbonisation: Is Government too complacent? **Caroline Bragg**, Director of Policy and Research, The ADE
- Industrial energy efficiency, what can industrial sites do today to reduce their energy demand - **Jenni McDonnell**, Innovate UK KTN
- Integrated solutions for decarbonisation in industrial plants - **Susanna De Toni**, Deputy Operations Manager, Seingim Global Service srl
- Financial and environmental benefits of industrial use of solar PV - **Jamie Storry**,

- National Sales Manager, Emtec Energy
 • **Panel discussion and audience Q&A**

Onshore wind stream Carron

Onshore wind 3

Investment in, and coordination of, new onshore electricity infrastructure 11:00-12:30

Chair: Jourdan Edwards, Deputy Director, Onshore Networks, Ofgem

- Regulating for a net zero energy network - **Jourdan Edwards**, Deputy Director, Onshore Networks, Ofgem
- A transmission owner's view (England and Wales) - **Sara Habib**, Head of Future Price Controls, National Grid
- A DNO's view (Scotland) - **Stephanie Anderson**, Head of Regulation and Policy, SP Energy Networks
- The system operator's view - **Julian Leslie**, Head of Networks, National Grid ESO
- A wind farm developer's view - **Patrick Smart**, Energy Networks Director, UK & Ireland, RES
- **Panel discussion and audience Q&A**

Onshore wind 4

14:00-15:30

Onshore wind and biodiversity: How onshore wind can be part of the solution to both the climate and nature crisis

Chair: Grant Douglas, Head of Planning & Environmental Policy, ScottishPower Renewables

Speakers:

- **Cara Davidson**, Head of Energy and Environment: Planning, Architecture & Regeneration Division Scottish Government
- **Marc van Grieken**, Director, MVGLA
- **Brendan Turvey**, Low Carbon Project Manager, NatureScot
- **Kirsty MacArthur**, Director & Co-Owner MacArthur Green
- **Jamie Leslie**, Project Manager and Ecology Lead, Muirhall Energy
- **Andy Allan**, Lead Environment Manager, SSE Renewables
- **Panel discussion and audience Q&A**

Solar and circularity sessions Dochart

Solar 2 Markets and Grid

In association with Solar Energy Scotland
11:00-12:30

The decarbonisation of heat and transport represent two of the biggest hurdles in Scotland's just transition to net zero. Almost all buildings in Scotland will need to adopt low carbon heating systems by 2045 to meet climate change targets, and the Committee on Climate Change predicts most of the new heating systems will be electric - either heat pumps or flexible electric storage heating.

Solar deployment is key to lowering consumer bills and building a resilient electricity grid. System flexibility and energy storage will be key in keeping the grid operational and ensuring consumers can access and afford power when they need it, even if the wind isn't blowing or the sun isn't shining.

The investment and engineering work required to be able to flexibly store and transmit electricity is costly and takes time to plan and install. Solar energy is usually a footnote in DNO strategies, so no holistic plans for building a grid that maximises utilisation of both wind and solar power are ever developed, placing higher costs on solar developers to fund the cost of future infrastructure investment compared to other technologies.

This session investigates how solar energy could be better integrated into DNO strategies, and how market mechanisms could enable faster deployment in the next decade of delivery.

Moderator: Gemma Grimes, Director of Policy & Delivery, Solar Energy UK
Solar Energy UK

Presentations:

- **Josh King**, Managing Director, Gensource, Vice-Chair, Solar Energy Scotland
- **Emily Rice**, Policy Analyst and Executive, Solar Energy Scotland

Panel:

- **Chris Clark**, Director, Emtec Energy
- **Stephen McKellar**, Senior Policy Manager- Grid and Systems, Scottish Renewables
- **Josh King**, Managing Director, Gensource, Vice-Chair, Solar Energy Scotland
- **Emily Rice**, Policy Analyst and Executive, Solar Energy Scotland
- **Panel discussion and audience Q&A**

Showcasing the adoption of the circular economy in wind

In association with NMIS and the University of Strathclyde

14:00-15:30

Building on the back of the launch of the Coalition for Wind Industry Circularity, this session showcases how the barriers of the circular economy are being broken down and the adoption of sustainable methods of O&M are being implemented.

Tens of billions of pounds could be generated for the UK economy from the re-use, refurbishment and re-engineering of broken wind turbine parts, according to a new coalition set up to drive the creation of a circular supply chain for renewables in the UK. Building the capabilities to refurbish wind turbine parts in the UK could also generate more than 20,000 full-time equivalent jobs by 2035 and prevent more than 800,000 tonnes of parts from being scrapped.

Chair and speaker: Chris Courtney, National Manufacturing Institute Scotland (NMIS) Speakers:

- **Kate Wallace-Lockhart**, Head of Sustainability SSE Renewables
- **Professor David Butler**, University of Strathclyde
- **James Barry**, Chief Executive, Renewable Parts
- **Dr Anne Velenturf**, University of Leeds
- **Panel discussion and audience Q&A**

Cyber security; and grid capacity Boisdale 1

Cyber security in the energy industry 11:00-12:30

Chair: Kate Brader, Head of Crisis, Senior Managing Director, FTI Consulting
Speakers include:

- **Shaun Reardon**, Principal, Cyber Security Consultant, DNV, who will share first findings and insights from DNV's upcoming cyber security energy survey due to be published in June 2023
 - o Provide an overview of best industry practice and why companies need to invest in their cyber security strategies including any blind spots in the supply chain
 - o Why the industry needs to work together, like it did when oil and gas created HSEQ industry standards, to ensure best industry practice and protect against industrial cyber-attacks
- **Christoph Kroack**, Principal Cybersecurity Officer, Siemens Energy
 - o What is on the legislative horizon for Cybersecurity in Europe (NIS/CRA) and how it will impact your industry
- **Flick O'Mahony**, Principal Cybersecurity Officer, Siemens Energy
 - o Why "Secure by default - Design" helps you integrate our products better into your industry
- **Dr Greig Paul**, Head of Technical Delivery, Security & Resilience Research Centre, University of Strathclyde & Deputy Chair, UK Telecoms Data Task Force who will:
 - o Provide an overview of how decarbonisation and net-zero make cyber security and resilience harder to achieve.
 - o Share some of the key security challenges faced by the sector, and why and how these arise.
 - o Discuss why initiatives looking at supply chain security and resilience need to delve even deeper than they do today, and what they need to focus on in future.
 - o Understand the attacker and defender mindset, and how the differences can result in vulnerability.
 - o Explore how energy systems and telecoms networks are co-dependent, and what this means for whole system and international resilience.
 - o Understand what we can learn from past incidents, to build and defend the security and resilience of critical infrastructure in an increasingly uncertain world.
- **Panel discussion and audience Q&A**

Unlocking grid capacity: A connections approach fit for net zero 14:00-15:30

Delivering government targets for zero carbon power by 2035 requires effective allocation of network capacity to connect low carbon energy, new demand and energy system services, in a way that minimises delays. The current connections process was not designed to manage the volumes of applications now being received by the electricity system operator, or the increase in both speculative applications and repeat delay of connection dates by customers awaiting planning consent or investment decisions. These factors have made network planning increasingly impractical in recent years.

This has now resulted in new applications being given dates so far off that they are at risk of not being able to contribute to these 2035 goals. Hear from the network and system operators who are working together, with the support of the regulator and government, to determine a new approach to connections that will tackle these challenges.

Unlocking grid capacity: A connections approach fit for net zero

Chair: Lawrence Slade, CEO, Energy Networks Association

Speakers include:

- **Christianna Logan**, Director of Customers and Stakeholders, SSE
- **Gareth Hislop**, Head of Transmission Commercial and Policy, SP Energy Networks
- **Susana Neeves e Brooks**, Head of Electricity Customer Connections at National Grid ESO.
- **Steve McMahon**, Deputy Director for Onshore Networks, Head of Scotland, Ofgem
- **Roisin Quinn**, Director of Customer Connections, National Grid

Panel discussion and audience Q&A

The road to Net Zero; and digitalisation

M2/M3

Taking the consumer on a Net Zero journey they'll enjoy

11:00-12:30

This session will highlight the importance of creating a zero carbon future everyone can enjoy. It will explain the benefits of user-centred design to senior decision makers across the sector and the pitfalls of ignoring what people want.

Chair: Dr Matt Lipson, Director, Carbon Free Future Ltd

Speakers:

- The road to Net Zero - road trip, joy ride, or car crash - you decide- **Matt Lipson** introduces the session
- Why bother: why consumers are key to getting to Net Zero? - **Laura McGadie** - Head of Energy, Energy Savings Trust
- How to switch all drivers to EVs without breaking the energy system? - **Jonathan Jenkins** - Head of Innovation, Motability
- How do we persuade people to decarbonise their heating? - **Mark Bjornsgaard** - CEO, Deep Green Technologies
- Creating a net zero service that keeps people warm, well land out of hospital - **Rose Chard** - Fair Future Programme Lead, Energy Systems Catapult

Panel discussion and audience Q&A

Digitalisation from production to delivery

14:00-15:30

Chair: Dr Peter Clive, Principal Wind Energy Consultant, Black & Veatch

Speakers:

- **Elena Gonzalez Garcia**, Lead O&M Engineer - Data Analysis & Reporting, ScottishPower
- **Dr Joanna McKenzie**, Head of Data Innovation, Ofgem
- **Dr Lourdes Gala Santos**, Onshore Wind Lead, DNV
- **Gavin Starks**, CEO, Icebreaker One
- **David McMillan**, Reader in Wind Energy, University of Strathclyde

Panel discussion and audience Q&A

Marine Scotland session

M4

Offshore wind: What's happening in 2023?

An update from the Marine Scotland Directorate, Scottish Government

11:00-12:30

Chair: David Pratt, Head of Marine Planning, Development & Crown Estate Strategy, Marine Scotland Directorate

- National Marine Plan 2- Update on progress
- Offshore Wind Sectoral Planning - ScotWind Iterative Plan Review and INTOG Sectoral Marine Plan
- Environmental Assessment for offshore wind farms including implications of legislative reforms
- Scottish Marine Energy Research - An update on projects
- MS-LOT Streamlining Project Update

Panel discussion and audience Q&A

Innovate UK session

Hall 1

11:00-12:30

Financing Net Zero

Organised by Innovate UK

Innovate UK is launching a new financing net zero programme seeking to unlock the scalability of UK cleantech companies. Finance is a key barrier to scaling new clean energy systems and often require a range of types of capital to get to market. This session will deep dive into the role Innovate UK is playing to unlock capital and hear from perspectives from investors and SMEs active in driving change.

Speakers:

- **Christian Inglis**, Head of Urban Systems, Clean Growth & Infrastructures
- **Sarah Tennison**, Head of Clean Growth Strategy and Impact, Innovate UK
- **Sarah Mackintosh**, CleanTech

Hydropower and PPA sessions

A1sh 1

Hydropower: scaling up and deploying the work horse of renewables

11:00-12:30

In association with the British Hydropower Association

Chair: Kate Gilmartin, CEO, British Hydropower Association (BHA)

Speakers:

- A BHA update on policy and strategy- **Kate Gilmartin**, CEO, BHA
- Hydro@80 - **Peter Diver**, Head of Hydro Operations, SSE Renewables
- Sawmill renovation in Glasgow - **Gordon Black**, Director, babyHydro
- Pumped storage hydro - **Tom Clegg**, Head of Hydropower UK&I, Fichtner Consulting Engineers
- Tidal range - **Luke Lovell**, Major Programmes and Projects, Europe, Jacobs

Panel discussion and audience Q&A

PPAs

14:00-15:30

What are the latest trends in PPA routes to market for renewable developers and generators to sell their power?

Chair: Monika Paplaczkyk, Investment Director, Thrive Renewables

Speakers

- **Kristina Rabecaite**, CEO, PPAYA
- **Tom Abbott**, Head of PPA, EDF
- **Leigh Brown**, Senior Business Development Manager, Smartest Energy
- **Rhys Thomson**, Commercial Director, Community Windpower Limited

Panel discussion and audience Q&A

Local Energy Scotland stream

A1sh 2

Community and Local Heat

Organised by Local Energy Scotland

11.00- 12.30

Join experts from government, consultancies, and delivery bodies to talk about community heat projects. This session will explore the policy context, lessons from feasibility studies, and the practical solutions required to accelerate the deployment of renewable heating.

Chair Iona Hodge, Local Heat Development Specialist (CARES), Local Energy Scotland

Panellists

- Why community and local heat- the policy context - **Sue Kearns**, Deputy Director Heat in Buildings, Scottish Government
- Findings and next steps for the Rural Community Energy Fund heat projects - **John Moore**, Director, NZC Services
- The Scottish Government's Community Heat Development Programme.- **Neil Harrison**, Director, Reheat
- Heat pumps - accelerating successful deployment - **Ben Whittle**, Technical Manager, Energy Saving Trust

Panel discussion and audience Q&A

Shared Ownership and Community Benefit

Organised by Local Energy Scotland

14:00-15:30

Join experts from government, communities, developers, and finance to talk about how to finance shared ownership and community investment projects. This session will explore the policy context, community, developer and funder perspectives, and best practice. We will explore what works best and discuss the outcomes from financial advisors QMPF's recent financial research for Local Energy Scotland.

Chair: Mark Brennan, Shared Ownership Manager, Local Energy Scotland

Panellists:

- Why shared ownership and community benefit? - **Josephine Ives**, Team Leader, Community Energy, Scottish Government.
- What works for communities? - **Simon Lee**, Manager, Farr North Community Development Trust.
- What works for developers? - **Morvern Smith**, Head of Community Investment, SSE.
- How can projects be funded? - **Andrew Dougans**, Director, QMPF.

Panel discussion and audience Q&A

THANKS TO ALL WHO HAVE WORKED ON THE CONFERENCE

Huge thanks to all Chairs and Speakers - without you, there'd be no conference! Thank you too to Shepherd and Wedderburn and Shell UK for your much appreciated and ongoing conference sponsorship and DWF for sponsorship of the Offshore Wind Show Floor Theatre.

Our thanks also go to all who responded to the 'Call for Speakers' for our show floor theatres and Academic Posters; they contribute enormously to the overall programme and to the atmosphere on the show floor.

There are even more people than ever to thank this year. The major stakeholders who, during the autumn and winter, predicted angles that could be of particular interest were generous in giving their views and - the most precious of commodities - their time.

Opting for a 'by invitation' conference meant in many cases working with key individuals on topics, then finding a likely Chair, then working with that Chair.

Huge thanks go to all of the people who fit those descriptions; and particularly the ones who, when it was agreed they would Chair, found themselves much more 'in the thick of it' than they might have originally imagined. Please do it again!

Thank you too to those who put forward ideas for whole sessions and organised them - the British Hydropower Association, the Centre for Energy Policy at Strathclyde University, EDF Energy/SmartestEnergy, Greenbackers, Ofgem, ORE Catapult (wearing an SUT MREC hat), Marine Scotland, Scottish Renewables, Solar Energy Scotland, UKRI and Innovate UK. And lastly, the individuals who can be guaranteed to keep us on the 'straight and narrow'. It is tempting to name you all, but the list would be very long. Our heartfelt thanks to each and every one of you.

All-Energy and Dcarbonise owe you a great debt. Thank you!

Judith Patten MBE, Project Director

'MEET THE DEVELOPER' SHARE FAIR



Over the two day event, All-Energy/ Dcarbonise will host a series of 1-2-1 'speed dating' meetings. Visit STAND H90 next to the Power Club lounge. It's where you can literally 'Meet the Developers' looking to expand their supply chains; We have a range of owner/operators of energy projects

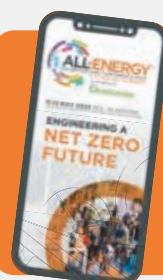
and devices looking to work with you. To attend your pre-booked meeting; or to book a meeting, please visit the Share Fair reception at the Power Club, from 11:00-12:45; 13:00-15:00 and (only on day 1) 15:45-17:30

Here's who you can meet on Day 1:

- 11:00-12:45
Salamander Floating Offshore Wind - Huw Bell, Salamander Project Director
- 11:00-12:45
Thistle Wind Partners - Gavin Mackay, Supply Chain Manager and Ian Taylor, Project Director
- 11:00-12:45
Corio Generation - Rob Heaton, Supply Chain and Local Content Lead; Mark Middleton Contracts & Procurement Manager and Lewis Kirkwood Supply Chain
- 13:00-15:00
EnbW - Duncan Ayling, Supply Manager, UK Offshore Wind and BP - Ricky Gray, Supply Chain Lead, Morven Offshore Wind
- 13:00-15:00
Corio Generation - Rob Heaton, Supply Chain and Local Content Lead; Mark Middleton Contracts & Procurement Manager and Lewis Kirkwood Supply Chain
- 13:00-15:00
EDF Renewables - David Sweeney, Development Manager
- 13:00-15:00
Buchan Offshore Wind - Adam Hollis, Supply Chain Manager
- 13:00-15:00
Cierco - Miriam Noonan, Commercial Manager
- 15:45-17:30
Buchan Offshore Wind - Adam Hollis, Supply Chain Manager

And there are more on Day 2!

- 11:00-12:45
Salamander Floating Offshore Wind - Huw Bell, Salamander Project Director
- 11:00-12:45
Thistle Wind Partners - Gavin Mackay, Supply Chain Manager and Ian Taylor, Project Director
- 11:00-12:45
Corio Generation - Rob Heaton, Supply Chain and Local Content Lead; Mark Middleton Contracts & Procurement Manager and Lewis Kirkwood Supply Chain
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EnbW - Duncan Ayling, Supply Manager, UK Offshore Wind and BP - Ricky Gray, Supply Chain Lead, Morven Offshore Wind



Check the All-Energy and Dcarbonise App and the website for more information



Future Talent at



Future Talent is hugely important to all of us as we strive towards meeting our Net Zero ambitions. As such, this year boasts more youthful focus than ever before with free-to-attend sessions for both employers and candidates:

- **Back by popular demand: the Future Talent Hub**, kindly supported by a host of energy organisations, groups and individuals, boasts a programme of free-to-attend sessions focussed around attracting new and re-skilled resource & talent to power an accelerated net zero future. Check out its programme on the adjacent page and visit **STAND A50** to benefit from this important free learning.
- The co-located **Green Skills for a Net Zero Future** feature, delivered by the Energy Skills Partnership, highlights the proactive approach colleges across Scotland are taking to support the Climate Emergency and the Just Transition to Net Zero. Working together, they are developing and delivering the capability, capacity, and curriculum to support skills for the Energy Transition, Transport, Engineering and Manufacturing, Construction and Energy Efficiency. Visit **STAND A40** to discuss your skills requirements, available support and see live demonstrations of the training activities colleges are offering.

Supported by



- The **Research Hub**, delivered by ETP on **STAND K70**, is home to academic/industry presentations from key organisations involved in renewable energy in Scotland, England, and N. Ireland. The Hub features a presentation theatre with a rolling programme over the two days.
- Further **future skills** sessions in the conference include “Workforce: Green jobs, Skills, and Training” (11:00-12:30) and “Working for Net Zero: Ensuring good quality and sustainable jobs: A joint Centre for Energy Policy and Future Energy Skills event” (14:00-15:30), both in Dochart on Wednesday 10th May.



The **Shell Eco-marathon** is a global academic programme that challenges talented students to design & build cars, considering technical and behavioural factors, to achieve game-changing energy efficiency results.

We welcome two teams this year to showcase their marathon developments on **STAND R41**:

- USEV from the University of Strathclyde
- PrototAU from the University of Aberdeen

FUTURE TALENT THEATRE

Wednesday 10 May

- 11:00 Panel: Blowing up the pipeline: exploring new pathways for young talent in energy**
Join us for a thought-provoking panel discussion on the future of young talent in the energy sector. As the industry continues to grow, so too does the need for a diverse and inclusive workforce. This panel will explore the pathways for young talent to enter the sustainable energy field, as well as strategies for attracting, developing, and retaining the best and brightest. From STEM education to mentorship programs, our panel of young professionals will share their insights on how we can build a more inclusive and equitable pipeline for the energy workforce of the future. Don't miss out on this opportunity to engage with leading voices in the industry and gain valuable insights on the future of sustainable energy talent.
Chair: Sam Beaton, Senior Renewable Heat Engineer at Natural Power, and Vice-chair of Southern Scotland's Young Professionals Network
- 12:00 Delivering the skills for an industry in transition**
Paul McCormack, Innovation Manager, Belfast Metropolitan College
- 12:30 Break**
- 12:45 Workforce mobility across the energy sectors**
Michael Love, Head of Skills Policy, OPITO
- 13:15 Recruiting a 1000 Green Jobs for ScottishPower**
Victoria Rodger, Director of HR Operations, ScottishPower
- 13:45 Break**
- 14:00 Investing today in the workers of tomorrow**
Stephanie O'Donnell, Workforce Planning & Change Manager, SSEN - Transmission
With 20% of our sector's workforce being predicted to retire within the next ten years, it is estimated that 221,000 new recruits would need to be sourced during that same period to replace them and others leaving the industry. Combine this figure with the fact that only 1% of those leaving education choose to work in the energy and utilities sector, and it's clear we face a significant and tangible resourcing challenge. In this session, we will discuss these skills shortage challenges and how SSEN Transmission are pro-actively working to attract diverse talent through our Trainee, apprenticeships and graduate roles. We will also share a number of opportunities available with varying entry criteria to demonstrate we have something for everyone on our journey to net zero
- 14:30 Panel: Green Skills for a Net Zero Future**
Jim Brown, Director ESP
Dougie Knox, Sector Manager - Engineering & STEM, ESP
John Renwick, Sector Manager - Construction, ESP
Rachel Tulloch, Sector Manager - Energy Transition and Transport, ESP
- 15:30 Break**
- 16:00 Panel: Scottish Future Leaders Programme Cohort #1**
Right now, the climate crisis requires future-focused leaders, who are resilient, ambitious, and committed to driving change to meet net zero targets. The Future Leaders Programme is a nine-month, immersive experience, which equips participants with a unique set of leadership skills to tackle climate change related issues. Join the panel to hear from Richard Cartlidge, the director of the programme, Ian Rippin, CEO of MCS, and Elaine Ellis, Skills Planning Manager at Skills Development Scotland, who will discuss why Future Leaders was created and uncover the programme's successes so far. Members from the Scottish Future Leaders Programme Cohort 1 will also be in attendance to share their journey and the current project they're working on which has the ambition to accelerate our net zero transition by embracing active travel and all its benefits.
Chairs:
Ian Rippin, CEO, MCS
Richard Cartlidge, Director, Your Navigator
Elaine Ellis, Skills Planning Manager, Skills Development Scotland
- Speakers:**
Scottish Future Leaders Cohort #1
- 17:00 End**

Thursday 11 May

- 11:00 Panel: Delivering Impact on the Skills and Capacity Challenge**
Chris Whitehead, Morven - Stakeholder Engagement Manager
Sian Wilson, Full Circle 21 (Founder) and Crown Estate Scotland (Head of Offshore Development)
Ian Taylor, Thistle Wind Partners - Project Director
Jolanda Cameron, X-Academy - Energy Transition Xccelerator
- X-Academy was launched in early 2022 as a professional skills organisation, with a clear mission to deliver the skills needed for the energy transition. Through our unique 2-year programme, our first cohorts of graduates, young professionals and reskillers are developing their capabilities across a breadth of technical, professional, and behavioural skill sets. This presentation will highlight the success of X-Academy to date, sharing lessons learned and key case studies which showcase the breadth of projects the people on the programme are contributing to. From offshore wind, to CCUS, to hydrogen and innovative social impact projects, we are ensuring that the next generation of skilled professionals have the experience, training and skills required to achieve net zero objectives.
- 12:00 Diversity and inclusion in the UK offshore wind sector**
Ranjit Mene, Global Wind Sector Lead, RINA
The UK government's offshore wind sector deal requires a massive three-fold increase in the number of people working in the offshore wind industry in the UK. As part of the deal, the Offshore Wind Industry Council (OWIC) is working with government and the wider supply chain to ensure that the workforce is as representative as possible of the general population. The group has produced a diversity & inclusion best practice guide for companies in the offshore wind sector and set gender, ethnicity, and apprenticeship targets for industry for 2030. As Ethnicity Champion, I will be updating the audience on the business case behind diversity, some facts & figures about the industry today, the world-leading actions that the group have implemented so far and delivering a case study.
- 12:30 Break**
- 13:00 The 4th Industrial Revolution - powered by people**
Paul McCormack, Innovation Manager, Belfast Metropolitan College
- 13:30 Recruiting a 1000 Green Jobs for ScottishPower**
Victoria Rodger, Director of HR Operations, ScottishPower

Green Jobs Board

Stand A60



Calling all employers

Pin up your current vacancies on our job board for prospective candidates to see and respond to



Calling all candidates

Pin up CV for prospective employers to see and respond to.

OFFSHORE WIND SHOW FLOOR THEATRE

Sponsored by



Wednesday 10 May

- 10:30** **Grid development - key enabler to deliver 50GW offshore wind by 2030**
Rahul Jagdale, Senior Engineer - Transmission System Planning & Investment Scottish & Southern Electricity Networks (SSENT)
- 10:45** **How deep can the Monopile foundation carry the offshore wind industry**
Ioannis Lessis, Head of Engineering, Offshore, SSE Renewables
- 11:00** **Enabling community ownership of offshore wind**
Monika Paplaczek, Investment Director, Thrive Renewables
- 11:15** **OWEKH: A new digital hub for offshore wind environmental assessment**
Elsbeth McIntyre, Principal Geospatial Consultant, Atkins
- 11:30** **Balancing social and environmental factors when siting offshore wind farms: A case study of Scotland**
Kyle Richford, PHD Candidate, University of Glasgow
- 11:45** **How to scale offshore wind deployment: a digital approach to improve decision making and accelerate planning**
Ana Vega Kurson, Engineer, Arup
- 12:00** Break
- 12:15** **Diversity and inclusion in the UK offshore wind sector**
Ranjit Mene, Global Wind Sector Lead, RINA
- 12:30** **SARWind: Offshore wind resource assessment based on high resolution satellite measurements**
Guillaume Vervout, Business Development Engineer, Meteodyn
- 12:45** **The art of the possible: What could collaboration look like for offshore wind developers?**
Norman Johnston, Balance of Plant Manager, Thistle Wind Partners
- 13:15** **Public priorities for energy for the next UK and devolved governments**
Sam Cranston, Director of Energy, Copper Consultancy
- 13:30** Break
- 14:00** **Supply Chain Collaboration for Offshore Wind Assembly**
Daniel Gear, Founder & Developments Director, Voar Energy
- 14:15** **Extending the life and reducing in-service costs for offshore wind foundations, a cloud-based solution to support operation and maintenance**
Georgia Lazzara, Senior Engineer, Arup
- 14:30** **The opportunity for offshore wind development in Australia and the challenges for a nascent industry**
Naomi Campbell, Co-founder and Development Director, Energise Renewables
- 14:45** **OFTO: What does the regime's future hold for ScotWind developers?**
George Cobb, Director, We Are Salt Consultancy Ltd
- 15:00** Break
- 15:15** **Exploring the FOWT mooring system landscape through generative design**
Dr Sam Weller, Associate Consultant, Tension Technology International
- 15:30** **Co-Existence in a Crowded Marine Space (as we build out more offshore, working with other marine space users, notably fisherman is an issue the offshore wind industry can't ignore)**
Fingal McKeirnan, Commercial Fisheries Manager, SSE Renewables
- 15:45** **Using Artificial Intelligence to identify mooring line shock load events at floating offshore wind farms**
Dr Keith Cobry, Modelling Engineer, Xi Engineering Consultants
- 16:00** Break
- 16:15** **Practical Approaches to Contractual Claims and Disputes**
Katherine Doran, Director in the Infrastructure, Construction and Energy, DWF



MARINE ENERGY AND FLOATING OFFSHORE WIND SHOW FLOOR THEATRE

Thursday 11 May

- 10:30 Quick connection systems for floating wind**
Beth Dickens, Director, Quoceant
-
- 10:45 Seabed leasing for floating offshore wind: A critical analysis of the strategies adopted in different country markets**
Gianluca Matthew De Angelis, Development Associate, Simply Blue Group
-
- 11:00 Floating wind and wave energy – a shared future with mutual benefit**
Tim Hurst, Managing Director, Wave Energy Scotland
-
- 11:15 Break**
-
- 11:30 Using chemistry to decarbonise the offshore energy sector**
Callum Scullion, Global Technical Development Manager, Italmatch
-
- 11:45 The impact of additional weather limitations on weather windows for floating offshore wind**
Jade McMorland, PhD Student, University of Strathclyde
-
- 12:00 Infrastructure Requirements for European Ocean Energy Arrays in the 2030s**
Donald Noble, Research Associate in Marine Energy, The University of Edinburgh
-
- 12:15 Break**
-
- 12:30 EMEC: 20 years of ocean energy innovation**
 EMEC's annual quick-fire session celebrates EMEC's 20th anniversary with speed updates featuring EMEC, wave and tidal energy developers and project partners working on pioneering projects to commercialise ocean energy
-
- 13:45 Pietro Sabbadin**, Mechanical and Energy Engineer, MARTINI & ASSOCIATI
-
- 14:00 Using alternative FOW inter array cable layouts using wet mate connectors to solve key challenges**
Michael Mitchell, Business Development Manager, Siemens Energy
-
- 14:15 Break**
-
- 14:30 New pitch control method for aerodynamic improvement in case of flow misalignment**
Theodore Holtom, Director & Founder, Wind Farm Analytics Ltd
-
- 14:45 Flexcom Wind Assessment of a Novel Dynamic Array Cable Configuration to Reduce Installed Cost**
Jamie McCallum, Senior Engineer, Wood
-
- 15:00 MeyGen Phase 1A Lessons Learned Update**
Andy Baldock, Director, Baldock Energy Ltd
-
- 15:15 Break**
-
- 15:30 Flexible, Direct and Distributed – Next Generation Wave Energy**
Elva Bannon, Research & Engineer Manager, Wave Energy Scotland
-
- 15:45 Integrating data science approaches to support improved decision making on offshore wind deployment across integrated marine spatial planning, leasing rounds and site selection**
Stephen Caraher, Senior Digital Consultant, Arup

COMMUNITY AND LOCAL ENERGY SHOW FLOOR THEATRE

Wednesday 10 May

Local Energy Scotland, Community and Local Energy Show Floor Theatre

Welcome and Introductions

- 10:15** Welcome and introductions, and how the sessions will work
Chris Morris, Project Manager, Local Energy Scotland

Topic 1 - Technical solutions and innovation

- 10:30** Prospering from the Energy Revolution
Sophie Kempthorne, Innovation Lead - Energy Systems, UKRI
- 10:40** Milford Haven Energy Kingdom: Taking a smart local energy systems approach to set out a “series of smaller, more achievable steps” for Milford Haven on the journey to net zero
Rosheena Jugdhury, Senior Engineer | Energy, Water & Resources, Arup
- 10:50** Glasgow As a Living Laboratory Accelerating Novel Transformation (GALLANT): sustainable low-carbon energy solutions at community scale
Gioia Falcone, Rankine Chair of Energy Engineering, University of Glasgow
Ria Dunkley, Senior Lecturer, University of Glasgow
Jamie Toney, Director of Centre for Sustainable Solutions, University of Glasgow
- 11:00** The Importance of Local Area Energy Planning in reaching Net Zero - and Smart Energy Systems - Energy Systems Catapult
Andrew Clark, Business Lead - Place Team, Energy Systems Catapult
- 11:10** 21st Century Version of the Gas Network
Lisa Treseder, Director of Business Development, Kensa Utilities
- 11:20** Q&A for Energy Planning
 Chaired by **Chris Morris**
- 11:45** Break

Topic 2 - Funding and Markets

- 12:15** Highlights of the support available from CARES for community energy projects
Chris Morris, Project Manager, Local Energy Scotland/ CARES funding
- 12:25** What types of funding are available for communities looking to build their own projects?
Monika Paplaczyk, Investment Director, Thrive Renewables
- 12:35** How meter splitting and localised, dynamic, time of use tariffs will enable a socially inclusive pathway to decarbonised communities
David Shields, Operations Director and Innovation Lead, Locogen
- 12:45** Disruption in our Industry
Thomas Parsons, Head of Sales and Origination, Good Energy
- 12:55** Decarbonising the Coop - Overcoming the Chicken and Egg Challenge of Matching Demand with Capital Investment
James Greener, Commercial Manager, Vattenfall
- 13:05** Q & A for funding and markets
 Chaired by **Kirsty Lewin**, Partnership Manager, Local Energy Scotland
- 13:25** Break

Topic 3 - Urban energy projects

- 13:50** Urban Off Grid Energy Hubs
Calum Watkins, Director, Glasgow Community Energy
- 14:00** Funding England's largest wind turbine
Otis Harrison, Investment Manager, Thrive Renewables
- 14:10** Bristol City Leap and Heat
Sonya Bedford MBE, Transition Consultant, Vattenfall Heat UK
- 14:20** Q&A
 Chaired by **Kirsty Lewin**, Partnership Manager, Local Energy Scotland
- 14:35** Break

Topic 4 Community Benefit, Collaboration and Shared Ownership

- 15:00** CARES and Shared Ownership
Mark Brennan, Shared Ownership Manager, Local Energy Scotland
- 15:10** Community Shared Ownership Investment Models
Andrew Dougans, Director, QMPF TBC
- 15:20** Supporting ambitious communities with shared ownership
Chris Grainger, Development Manager, Thrive Renewables
- 15:30** Experiences from Hagshaw Wind Cluster and how developers working together can create more impact for local communities (lessons learned and future ambitions)
Brendan Turvey, Low Carbon Project Manager, Nature Scot
- 15:40** Shetland's Collaborative Energy Future
Katrina Wiseman, Area Manager, Highlands and Islands Enterprise
Jennifer Sjoberg, Future Energy Project Manager, Shetland Islands Council
- 15:50** Q&A
 Chaired by **Mark Brennan**
- 16:15** End

HYDROGEN AND ENERGY STORAGE SHOW FLOOR THEATRE



Wednesday 10 May

- 10:30 Fast Tracking an Electrolytic Hydrogen Project in Glasgow**
Ewan Murray, Partner, Everoze
- 10:45 Future Electricity System Resilience and Security of Supply - Is Hydrogen the Answer?**
Grant Spence, Director, Net Zero Energy Systems
- 11:00 Whole System views on challenges and opportunities for integration of hydrogen**
Dr Priya Bhagavathy, Lead R&D Engineer (Whole Systems), University of Strathclyde
- 11:15 Green Ammonia from Hydro Power**
Sebastian Denno, Technical Director, AECOM
- 11:30 Delivering low carbon hydrogen for a greener, cleaner future**
Guy Appleton, Managing Director, New Energies, Kellas Midstream
- 11:45 Break**
- 12:15 EMEC Hydrogen & Friends speed updates**
 This quickfire session comprises a series of speed updates from EMEC and partners showcasing some of the latest developments from hydrogen innovation projects on Orkney and further afield which are supporting renewable integration and the decarbonisation of maritime and aviation sectors.
- The session will highlight lessons learnt from hydrogen R&D deployments and consider future hydrogen pathways and wider industry challenges such as scalability, training and the need for innovation and testing.
- 13:30 Hydrogen Supply Chain Opportunities**
Jamie Robinson, Hydrogen Specialist, Scottish Enterprise
- 13:45 Hydrogen - Scaling Up to meet demand**
Patrick McCarthy, Business Development Manager, Scottish Hydrogen and Fuel Cell Association
- 14:00 The pivotal role of energy efficiency in the hydrogen supply chain**
Paul Codd, CEO, Flexergy
- 14:15 Break**
- 14:30 Panel - Hydrogen: Make, Move, Use**
Chair: Kara Hazelgrave, Innovation Engagement Manager, PNDC, University of Strathclyde
Sivapriya Muthilal Bhagavathy, Lead R&D Engineer, PNDC
Jennie Morrison, UK Director, sHYp BV Ltd.
Irene Wilson, Project Director, Fortescue Future Industries (FFI)
- 15:30 Underground hydrogen storage - how to store vast amounts of energy**
Tim Armitage, Hydrogen Consultant, Arup
- 15:45 The Holy Grail of EV energy storage and Long Duration Energy Storage (LDES) - water based supercaps and flow batteries**
Paul Howdle, Chief Commercial Officer, Allegro Energy Pty

Thursday 11 May

- 10:30 Skills key to unlocking the clean hydrogen economy**
Paul McCormack, Innovation Manager, Belfast Metropolitan College
- 10:45 ORION Project - Helping Shetland become a regional hydrogen hub**
Gunther Newcombe, Project Coordinator, ORION Clean Energy Project
- 11:00 Moving Hydrogen - by Road, Rail, Sea or... Alchemy?**
Callum Turnbull, Research Engineer, Wood
- 11:15 Break**
- 11:30 Legal issues in transportation and storage of hydrogen**
Dalia Majumder-Russell, Partner, CMS
- 11:45 Novel flow battery for long duration storage**
Brenda Park, Director, COO, StorTera
- 12:00 Developing a flexible, innovative underground hydrogen storage solution**
Charlie Blair, Managing Director, Gravitricity
- 12:15 Break**
- 12:30 Advanced Digitalization and Threat Monitoring for Hydrogen Distribution and Storage Infrastructure**
Suji Kurungodan, Business Development Officer, Sustainable Pipeline Systems Ltd
- 12:45 Modelling Real-world Renewable Hydrogen Energy Systems for enabling Scotland Net-Zero Carbon ambition**
Ayatte Atteya, PhD Student, Robert Gordon University
- 13:00 Break**
- 13:30 Ammonia Synthesis Plant from Intermittent Renewable Energy**
Dr Stephen Livermore, Senior Systems Modeling Engineer, LIFTE H2
- 13:45 Compressors Solutions Supporting the Energy Transition in Grenn LH2, Ammonia, H2 Pipeline Compression and H2 Mobility Applications**
Eudoard Blanquart, Sales Manager UK & FR, Burckhardt Compression AG
- 14:00 Overcoming the Challenges of Intermittent Renewable Generation for Hydrogen and Hydrogen-Derivative Production**
Rachel Black, Process Engineer, Atkins
Ross Cooper, Process Engineer, Atkins
- 14:15 Break**
- 14:30 Standardisation of electrolysis**
James Steven, Business Development and Growth Manager, DNV UK TBC
- 14:45 Reducing the cost of hydrogen transportation by road**
Dr Stephen Livermore, Senior Systems Modelling Engineer, LIFTE H2 TBC
- 15:00 Repurposing natural gas fields for large-scale H2 storage: a perspective from reservoir engineering**
Dr Gang Wang, Research Fellow, Heriot-Watt University
- 15:15 Updates on electrolyser technology**
Terry Austin, Head of Electrolyser Product Line UK, Siemens Energy

TRANSPORT DECARBONISATION SHOW FLOOR THEATRE

In association with
Transport Scotland

Sponsored by



Wednesday 10 May

- 10:30 Shell Eco-marathon**
Charlie Wilson, (USEV)
Andrew Higgins, (ProtoTAU)
Alexis Goetcherian, (ProtoTAU)
-
- 11:00 Diesel Trains and H2iseO Hydrogen Valley: Advancing the Decarbonization of Railway Transport**
Ranjit Mene, Global Wind Sector Lead, RINA
-
- 11:30 Break**
- 11:45 Introduction to the Carbon Reduction Strategy Support Tool**
Steve Wright, Principal Researcher, SLR Consulting
-
- 12:15 Powering Public Transport with Hydrogen Fuel Cells: Reaching Cost-Parity with Diesel**
David Yorke, Market Development Manager, Ballard Power Systems Europe
-
- 12:45 Break**
- 13:00 The environmental, social and economic benefits of sustainable travel to local highstreets and town centres**
Anne-Marte Bergseng, Project Manager, Climate Resilience and Social Change, ClimateXChange
-
- 13:30 Making Digitalisation Cost Effective via Collaboration**
Wendy Ritson, Senior Geospatial Consultant, Atkins
-
- 14:00 Break**
- 14:15 Delivering EV Infrastructure: Commercial Models for a Maturing Market**
Ben Harrison, Sustainable Energy and Transport Consultant, Cenex
-
- 14:45 Port Energy Decarbonisation - Industry Insights and Perspectives**
Anthony Price, Managing Director, Swanbarton
Colin McNaught, Director of Strategic Growth, Ricardo Energy & Environment
-
- 15:15 Decarbonising transport through the EV revolution**
Kevin Welstead, EV Sector Director, SSE Enterprise Utilities
-
- 15:45 Break**
- 16:00 Delivering a high power electric transport ecosystem: from grid to vehicle (and back again)**
Dan Cutting, Head of DER-IC - Scotland PNDC, University of Strathclyde

Thursday 11 May

- 10:30 The EV revolution - opportunities and challenges**
David Butler, Team Leader Low Carbon Transition, Scottish Enterprise
-
- 11:00 Port Decarbonisation**
Maria Brucoli, Head of Research and Strategic Innovation, SSE Energy Solutions
-
- 11:30 Break**
- 11:45 Reducing the financial burden of deploying equitable EV infrastructure**
Andy Mouat, Head of Smart Mobility UK, ScottishPower
-
- 12:15 Accurate Billing for Hydrogen Energy Supply**
Marc MacDonald, Head of Hydrogen Metrology, TÜV SÜD National Engineering Laboratory
-
- 12:45 Break**
- 13:00 WESA - The Whole Energy Systems Accelerator**
Dr. Joseph Melone, Senior R&D Engineer, PNDC
-
- 13:30 Reuse of Natural Gas Pipeline for Hydrogen Transport**
Dr. Ofasa Abunumah, Research Assistant, Robert Gordon University
-
- 14:00 Enabling Transport Decarbonisation Across the Supply Chain**
Thuy-Tien Le Guen Dang, Group Sustainability and Marketing Manager, ASCO
-
- 14:30 Break**
- 14:45 Expanding Scotland's Electric Vehicle Charging Network**
Alastair Young, Associate Director, Net Zero Transport
Morna Cannon, Head of Fleets Infrastructure & Low Carbon Consumers at Transport Scotland

BUILT ENVIRONMENT SHOW FLOOR THEATRE

Wednesday 10 May

10:30 Assessing whole buildings to achieve net-zero - lessons from international examples

Agnes Berner, Researcher, Changeworks

10:45 Nexigen - The next generation of CO₂-reduced steel & metal solutions

Adam Dudley, Head of Customer Solutions, Kloeckner Metals

11:00 The experiences of heat pump early adopters: Influencing wider adoption amongst private homeowners in Scotland

Dr Kurt Borth, Senior Behavioural Consultant, Changeworks

11:15 Break

11:30 Net-zero homes for a net-zero future - decarbonisation through innovation

Kevin Aisbitt, Innovation Project Manager, Energy Innovation Agency

11:45 Zero emission power from green hydrogen to decarbonise temporary, back up, off-grid and supplementary power

12:00 Circular economy and the energy transition

Kenny Taylor, Partner - Energy Infrastructure, Zero Waste Scotland

12:15 Break

12:30 Decarbonisation for Decision Makers

Richard Miller, Director, Miller Klein

12:45 Changing human behaviours in building energy consumption with machine learning and space launches

Adam Wright, Commercial Director, measurable.energy

13:00 Supporting householders and lenders unlock the £360 Billion investment to decarbonise homes

Alex Schlicke, CEO, ZUoS Ltd

13:15 Creating the Largest Dedicated Energy Transition Complex in Scotland an Exemplary Net Zero Cluster

Neil Young, Land & Planning Director, Energy Transition Zone Ltd

13:30 Break

13:45 National Manufacturing Institute for Scotland

Roddy Yarr, Executive Lead Sustainability, University of Strathclyde

Ross Barrett, Lead Architect, HLM

14:15 Q&A Panel: Decarbonising Scotland's homes

Decarbonising the UK's homes - how can we deliver on government targets?

Reducing emissions from our homes is one of the most important things we can do in the fight against climate change. The governments in the UK have set ambitious targets to decarbonise housing stock. In particular, the Scottish Government has set the ambitious target that by 2045 Scotland's homes will be 'cleaner, greener and easy to heat' as part of the wider transition to net zero. What are the barriers the home nations must now overcome if we are to achieve these targets?

Chair: Ian Rippin, CEO, MCS

Speakers:

Nigel Donohue, CEO, IAA

Pilar Rodriguez, Programme Manager, Energy Saving Trust

Girvin Gill, Policy Advisor, Sustainable Energy Association

Emily Rice, Scotland Policy Analyst, Solar Energy Scotland

Bean Beanland, Director of Growth and External Affairs, Heat Pump Federation

15:15 Break

15:30 Decarbonising the built environment (retrofit and new build)

Noel Powell, Head of Regeneration and Development, SSE Energy Solutions

15:45 Building energy management systems - helping buildings to reduce usage and decarbonise

Brian Heron, North Regions Operations Director

16:00 Commercial Solar Solutions with ScottishPower

Lisa Ndogaj, Head of Smart Solar UK, ScottishPower

Stuart Angell, Commercial Development Manager, ScottishPower

16:15 Understanding the impact of batteries: lessons from real-world projects

Katy Syme, Impact Evaluation Consultant, Changeworks

HEAT DECARBONISATION SHOW FLOOR THEATRE

Wednesday 10 May

10:30 Avoiding the heat decarbonisation performance gap

Chris Davis, Head of Sales and Marketing UK, Hysopt

10:45 Space Technology enabling Cleaner, More Efficient Industry

Colin Kedge, Product Development Leader for Energy, Reaction Engines

11:00 Grassroots organisations and the transition to Net Zero

Hannah Dunne, Researcher, Changeworks

11:15 Break

11:30 Bridging the gap from prototyping to deployment using PNDC Thermal Innovation Facility

Dr Callum Rae, Senior R&D Engineer, University of Strathclyde

11:45 Hydrogen as a Fuel for Industrial Processes: Lessons Learned from application cases

Dr Filippo Cirilli, Deputy Manager, Rina Consulting Centro Sviluppo Materiali

12:00 Heat Pumps: Everything you need to know

Robert McGaughey, Head of Smart Heat, ScottishPower and **Fabrice Leveque**, Climate & Energy Policy Manager at WWF Scotland in conversation

12:30 District heating solutions and technologies

From Lochs to Watts: COWI's Impact on Scotland's Green Energy Horizon

Søren K. Christensen, Project Director and Henrik Dalsgård, Vice President, Market Cowi

How does your building stock affect your heat network

Simon Kerr, Account Manager and Eric McPhail, Account Manager, SAV Systems

A Danish district heating practitioner in the Hot Seat - come and ask questions

Jens Andersen, Managing Director, Næstved District Heating Company

The right choice of pre-insulated pipe system - total cost of ownership

Chris Hill, Sales Director and Iain Richards, Sales Manager, Kingspan

Customer protection, Fuel Diversity, Zero Carbon

Morten Jordt Duedahl, Business Development Manager, DBDH

13:30 Break

13:45 Digital Heat Opportunities

Rachel McCaw, Specialist in Low Carbon Transition, Scottish Enterprise

14:00 Financial considerations for developing low carbon heat networks

Andrew Wilkinson, Partner, QMPF LLP

14:15 Heat Balance: Decarbonisation of heat and mitigation of renewable curtailment

Daniel Friedrich, Chair of Energy Systems, University of Edinburgh

14:30 Cost Effective Thermal Storage for the Domestic Market

Richard Yemm, Director, Q-zeta Ltd

14:45 Break

15:00 How preserving the sanctity of customer choice is preventing effective heat decarbonisation

Tanja Groth, Director, Carbon Limiting Technologies

15:15 Decarbonising heat, heat decarbonisation and our relevant projects from our just transition report

Rhys Williams, Innovation Project Manager, SSE

15:30 Would hydrogen be capable of sustainably heating our homes?

Arash Badakhsh, R&D Engineer, Hydrogen Specialist, University of Strathclyde

15:45 Midlothian Energy: A Public/Private Joint Venture

Gordon Pollock, Director, Midlothian Energy Limited

16:00 Decarbonising Distillation: Options, Opportunities and Risks

Jack Byres, Principal Renewable Energy Consultant, Locogen



HEAT DECARBONISATION SHOW FLOOR THEATRE

Thursday 11 May

10:30 Greening the gas grid - how far can AD take us?

Euan Munro, Energy Transition Lead, SLR Consulting

10:45 Green process heat for our industries

Herbert Piereder, International Business Development, Lumenion GmbH

11:00 The Scottish Government's Heat in Buildings Strategy

Catrin Cooper, Heat in Buildings Policy, Regulation and Programme Delivery Manager, Scottish Government

11:15 Break

11:30 Heat Decarbonisation - Dealing with Uncertainty

Andrew Wholley, Associate, Mott MacDonald

11:45 Digital Heat Opportunities

Rachel McCaw, Specialist in Low Carbon Transition, Scottish Enterprise

12:00 How preserving the sanctity of customer choice is preventing effective heat decarbonisation

Tanja Groth, Director, Carbon Limiting Technologies

12:15 Break

12:30 District heating solutions and technologies

Capacity building for successful District Heating

Torben Kirkegaard, Chief Education Officer, Energy and Climate Academy

Digitalisation and district heating

Jens Andersen, Managing Director, Næstved District Heating Company

Valves for District Energy

Frank Nielsen, Sales Director, Broen Valves

Waste -and biomass fired combustion plant

Bo Johansen, Sales Director, Verdo

The municipal role in district heating developments - an international perspective

Morten Jordt Duedahl, Business Development Manager, DBDH

13:30 Securing a Just Transition to Net Zero

Ross Armstrong, CEO, Warmworks

13:45 Bristol City Leap and Heat Decarbonisation and Social Value from a large energy procurement

Sonya Bedford, Consultant, Vattenfall Heat UK

14:00 Break

14:15 Advice on LHEES appraisals of clean heat networks

Prof. David Pearson, Group Sustainable Development Director, Star Refrigeration

14:30 Advances in Geothermal Heating and Cooling for Heat decarbonisation

Dr Ityona Amber, Lecturer, RGU

14:45 Transitioning to a Low Carbon Future with Salix Finance

Heather Jones, Senior Programme Manager, Salix Finance

INNOVATIVE SOLUTIONS SHOW FLOOR THEATRE 1

Thursday 11 May

- 10:30 Revamping and Repowering solar parks Shedding light on futureproof PV**
Saurabh Saxena, PV Revamping & Repowering Lead, BayWa r.e.
-
- 10:45 Disruption in our Industry**
Thomas Parsons, Head of Sales and Originations, Good Energy
-
- 11:00 Innovating for domestic decarbonisation and flexibility**
Eveline Sleiman, Senior Commercial Manager - Homes, Energy Systems Catapult
-
- 11:15 Break**
-
- 11:30 Better offshore connectivity is critical for strategic success**
Derek Phillips, Managing Director, The Clarus Network Group
-
- 11:45 DC Networks**
Alan Ritchie, Innovation Manager, SSEN Transmission
-
- 12:00 X-Academy: Delivering Impact on the Skills and Capacity Challenge**
Matthew Jacobs, VP Operations and Partnerships, X-Academy
-
- 12:15 Break**
-
- 12:30 The digitalisation of our energy system – ‘Digital Spine’**
George Adams, Business Development Manager, OSI Renewables
-
- 12:45 Condition Monitoring to Boost Sustainable Operation and Maintenance**
Michael Aufreiter, CEO, Inmox GmbH
-
- 13:00 OLTER – provision of a Robotics and Autonomous System (RAS) Industrial Centre to support the Offshore Energy Industry scale and commercialise robotics as a service**
Andy Bell, Project Manager, Net Zero Technology Centre
-
- 13:15 Break**
-
- 13:30 Robotics enabling Net Zero**
Sakshi Sircar, Senior Project Engineer, Net Zero Technology Centre
-
- 13:45 The critical role of digital ecosystems for enhancing collaboration and the timely delivery of project consents**
Mark Brown, Head of Market Strategy & Innovation, SLR Consulting
-
- 14:00 Commercial delivery of decarbonising energy transition approaches and circular energy systems**
Fraser Pritchard, Director, Columbus Energy Partners

INNOVATIVE SOLUTIONS SHOW FLOOR THEATRE 2

Thursday 11 May

- 10:30 Digitally managing module warranty claims**
Naseer Mirza, O&M Project Manager, RES
-
- 10:45 Minimizing the Environmental Impact of Asset Intensive Organizations through Intelligent APM**
Cyrus Sorab, IFS
-
- 11:00 Break**
-
- 11:15 Operation of renewables using a variety of remote communication platforms**
Claire Chapman, Renewable Generation Manager, Scottish Water
-
- 11:30 Preparing for main component failure – what can we do as an industry to improve?**
Brian McDaid, Head of Turbine O&M, RES
-
- 11:45 Break**
-
- 12:00 The UK’s first carbon negative energy infrastructure**
Stuart Caley, UK Sales Manager, PyroCore
-
- 12:15 24/7 Carbon Free Energy (CFE) - Empowering cities around the world to run entirely on clean energy, every hour of every day**
Terri Willis, Associate Director, Arup
-
- 12:30 Break**
-
- 12:45 eLARS- The world’s first all-electric launch and recovery system**
Kevin Murray, Managing Director, MacArtney Underwater Technology Group
-
- 13:00 De-risked, Decarbonised, Delivered exploiting Uncrewed Surface Technology to conduct seabed characterisation for offshore wind farms**
Jordan Thomas, Business Development Manager, Sulmara
-
- 13:15 Break**
-
- 13:30 Peer-leading ESG through deployment of continuous emissions monitoring**
Craig Wreglesworth, CATS Operations & Maintenance Manager, Wood/Kellas Midstream
-
- 13:45 Crypto Mining: One of the most profitable ways to monetise your power!**
Josh Riddett, CEO, Easy Crypto Hunter
-
- 14:00 Tom Williamson**, Head of Innovation, ScottishPower

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FAQs



What's on



The Research & Innovation Hub

The Research & Innovation Hub at All-Energy brings academic and industrial collaborative projects together. These projects have a strong focus on energy and demonstrate the research and innovative technologies that have been developed as a result of effective collaboration.

An ETP initiative, The Research & Innovation Hub started at All-Energy 2019, aims to provide a space for networking to generate new partnerships between academia and industry. This year, The R&I Hub will be back at All-Energy 2023 with an exciting line-up of energy R&I projects, including Bentall Microturbine Developments Ltd, BE-ST, Birkbeck/ University of London – Wind Farm Analytics, Bumblebee EV, CalPac Resources, ETP, Flexergy Ltd, Industrial Systems & Control Ltd, Jerba Campervans, Mage Control Systems Ltd, Mainhunter Aerospace, University of St Andrews – Eden Campus, University of Exeter – IDRIC, University of Glasgow, University of the Highlands & Islands – North Highland College, University of the West of Scotland.



Projects will display on small pods within the Hub and more information about each organisation is listed in the Exhibitor Directory. There will be a programme of presentations in the Hub Theatre throughout both days of All-Energy, details of timings will be listed on the website.

The Hub will also for the first time host a Networking Drinks Reception from 16:00 on Wednesday 10 May, to launch the ETP Scottish Emerging Researchers in Energy (SERE) platform, all researchers, PhD students, academics and industry representatives interested in working with researchers are welcome to come along.



THE RESEARCH AND INNOVATION HUB

Wednesday 10 May

- 10:30** Decoupled electrolysis for the production of green hydrogen at high pressure
Prof Mark Symes, University of Glasgow
- 11:00** Place matters: insights from social science on the transformative potential of UK's net zero industrial clusters
Dr Huei-Ling Lae, University of Exeter
- 11:30** A living lab for sustainable energy and materials
Ian Hill, Eden Campus
- 12:00** Supporting Scotland's Energy Transition Journey
Dr Balaji Aresh, UWS
Prof. Keshav Dehal, UWS
Prof. Des Gibson, UWS
Prof. Jonathan Lawrence, UWS
Dr Mojtaba Mirzaeian, UWS
- 12:30** Break
- 12:45** Innovations in Zero Emission Mobility
- Lightweight Cells and Battery Packs for Aerospace Applications**
Dan Horstman, Mainhunter Aerospace
- Bumblebee and the future of domestic EV Charging**
Scott Deacon, Bumblebee EV
- Jerba's campervan e-evolution**
Simon Poole, Jerba Campervans
- Electrification of Flight**
Matthew Love, Mage Control Systems
- Data-driven Estimation for Battery Systems**
Dr Gerrit van der Molen, Industrial Systems & Control
- 14:00** Hydrogen Innovations
- 14:00** Copper for the Circular Economy
Tom Anderson, CalPac Resources
- 14:20** Moving Hydrogen from A to B - the pivotal role of energy efficiency
Paul Codd, Flexergy
- 14:45** Minewater Geothermal Energy: Inclusive Business Models Frameworks for a Just Transition and Community Wealth
Finlay Bain Kerr, ETP PhD Researcher Strathclyde University
- 15:05** Disturbance Identification and Mitigation in Power Systems - challenges with Observability
Taimur Zaman, ETP PhD Student Strathclyde University
- 15:25** Break
- 15:45** Launch Scottish Emerging Researchers in Energy (SERE)
Stephen-Mark Williams, ETP
- 16:00** Drinks reception
Networking Event for PhD's & ECR's + Everyone on Hub
- 17:00** End

Thursday 11 May

- 10:30** UHI Energy Innovation
Dr Stephanie Strother, UHI
Dr James Slingsby, UHI
- 11:00** Heatsource; A year of activity - A look back at the achievements of the Scottish Green Heat Industry Network and what is coming next
Emma Church, BE-ST
- 11:30** Innovations in Energy & Water
- HNEIP**
- What is a river microturbine and what does it do?**
Dr Richard H C Bentall, Bentall Microtubines
- 12:30** New wind turbine control upgrades arising from converging beam LIDAR research
Dr Theodore Holtom, Wind Farm Analytics/Birkbeck, University of London

ACADEMIC POSTERS

Triboelectric nanogenerators (TENG): A new technology to harvest mechanical energy wasted in the environment

Emma Keel, PhD Student, University of West Scotland

Innovating Energy Materials: Enabling High-performance Reversible Solid Oxide Cells for a Net Zero Economy

Ubong Essien, PhD Student, University of Strathclyde

Understanding the impacts of climate change on run of river hydropower in Great Britain

Ana-Diana Golgojan, PhD Candidate, University of Strathclyde

Gel Electrolytes - The solution for Supercapacitors?

Ammara Ejaz, Postdoctoral Researcher, University of West of Scotland (UWS)

The DiTo-H2 Project: Bridging the gap between scales in electrolysis technology - from materials to the grid

Dragos Neagu, Lecturer, Chancellor's Fellow, University of Strathclyde, University of Strathclyde

Communicating and engaging with stakeholders on research and innovation through research landscape mapping

Lee Richards, Supergen ORE Hub Manager, University of Plymouth
Prof. Deborah Greaves OBE FEng FICE FRINA, Prof. of Ocean Engineering, University of Plymouth

Multimode synchronous resonance detection and source identification in IBRs dominated Grids

Taimur Zaman, PhD Researcher, University of Strathclyde

A systems dynamics approach for quantifying wider impacts of sustainable mobility policy

Kathleen Davies, PhD Researcher, University of Strathclyde

Applying ANN technology to determine acceptable microclimate parameters for the National Library of Scotland's Collections to inform energy efficiency improvements in the UK Heritage Sector

Bo Han, PhD Student, Heriot-Watt University

Sustainable Materials for Hydrogen Related Technologies

Stephen Lyth, Chancellors Fellow in Sustainable Energy, University of Strathclyde

The UK energy research investment landscape and its fit with the pathway to net zero energy

Dr Rachel Freeman, Senior Research Fellow in Energy Transitions, University College London, Bartlett School of environment, energy and resources

Understanding Cold Start

Dr Magnus Rory Jamieson, Research Associate, PNDC

Developing an integrated resource risk assessment toolkit for Hot Sedimentary Aquifer projects

Maelle Bremaud, PhD researcher, University of Strathclyde

Integrating CCUS services into the UK economy: the challenge of persisting labour supply shortages and constraints

Dr Doungahire Abdoul Karim Zanhoun, Research Associate, University of Strathclyde, Centre for Energy Policy

Geothermal Energy from a Notional 6km Deep Borehole Heat Exchanger in Glasgow

Isa Kolo, Research Associate, University of Glasgow

Exploiting induced carbonate precipitation to improve reservoir storage integrity and geothermal system efficiency

Phillip Salter, PhD researcher, University of Strathclyde

Modelling Borehole Thermal Energy Storage using Curtailed Wind Energy as a Fluctuating Source of Charge

Christopher Brown, Research Associate, University of Glasgow

Research of the Conceptual Design of the Cryogenic Cooling and Cutting Method of Offshore Monopile Foundations for Decommissioning

Kenneth Bisgaard Christensen, PG Student, University of Aberdeen
Dr Alireza Maheri, Reader, University of Aberdeen, School of Engineering

Mapping suitability for low enthalpy heating/cooling technologies in Scottish superficial aquifers

Tristan Alexander Roberts, PhD student in geothermal energy, University of Aberdeen

Azerbaijan's Hydrocarbon Industry: Analysing Strategic Agency for New Path Development

Pinar Majidova, PhD Student, University of Aberdeen

Air Quality and the effect of ventilation on exhaled air in enclosed spaces

Graeme Hunt, Post Doctoral Research Associate, University of Glasgow

UK hydropower and marine energy capacity - a poorly tapped resource

Claire Kennedy, PhD Candidate, University of Strathclyde

Electrifying residential heat in the UK: The importance of heat pump cost reduction and domestic supply chain development in the presence of persisting energy price shocks

Long Zhou, Research Associate, Centre for Energy Policy, Strathclyde University

Balancing social and environmental factors when siting offshore wind farms: A case study of Scotland

Kyle Richford, PhD Candidate, University of Glasgow

Modelling of New Materials for Solid Oxide Cells

Chinyere Adaora Ekperechukwu, PhD Student, University of Strathclyde

Optimising Transmission Infrastructure to Deliver Accelerated Offshore Wind

Tara MacLeod, Research Engineer EngD student, Scottish Power Energy Networks/ University of Edinburgh

Catalytic upgradation of biomass pyrolysis vapors for selective production of phenolic monomers

Nandana Chakinala, Assistant Professor, Manipal University Jaipur, India & Commonwealth Professional Fellow, University of Strathclyde, Glasgow

Atriplex crassifolia: a potential halophytic substrate for Biogas production

Ali Nawaz, Assistant Professor Commonwealth Professional Fellow, Institute of Industrial Biotechnology, GC University Lahore Pakistan/ University of Strathclyde, Glasgow, Scotland

District Heating Model based on Energy Prosumer at South Korea

Jaejoon Choi, Principal Researcher, Korea Institute of Energy Research
Young Jik Youn, Korea Institute of Energy Research
Sae Byul Kang, Korea Institute of Energy Research
Hyun Hee Lee, Korea Institute of Energy Research

Near-UV Indoor Blacklight Harvesting Perovskite Photovoltaics Cells

Aruma Ivaturi, EPSRC Fellow and Senior Lecturer, University of Strathclyde

Printable Supercapacitors from Upcycled Biomass and Plastic waste

Aruma Ivaturi, EPSRC Fellow and Senior Lecturer, University of Strathclyde

Light-powered battery-less sensor for methane gas detection

Manuel Pelayo Garcia, PhD student, Institute of Thin Films, Sensors and Imaging (ITFSI) - UWS Albasense Ltd & Lightricity Ltd

Modelling, optimisation and analysis of tubular high temperature solid oxide steam electrolysis cell

Dr. Victoria Kurushina, Research Fellow, School of Engineering, The Robert Gordon University



ENGINEERING A NET ZERO FUTURE

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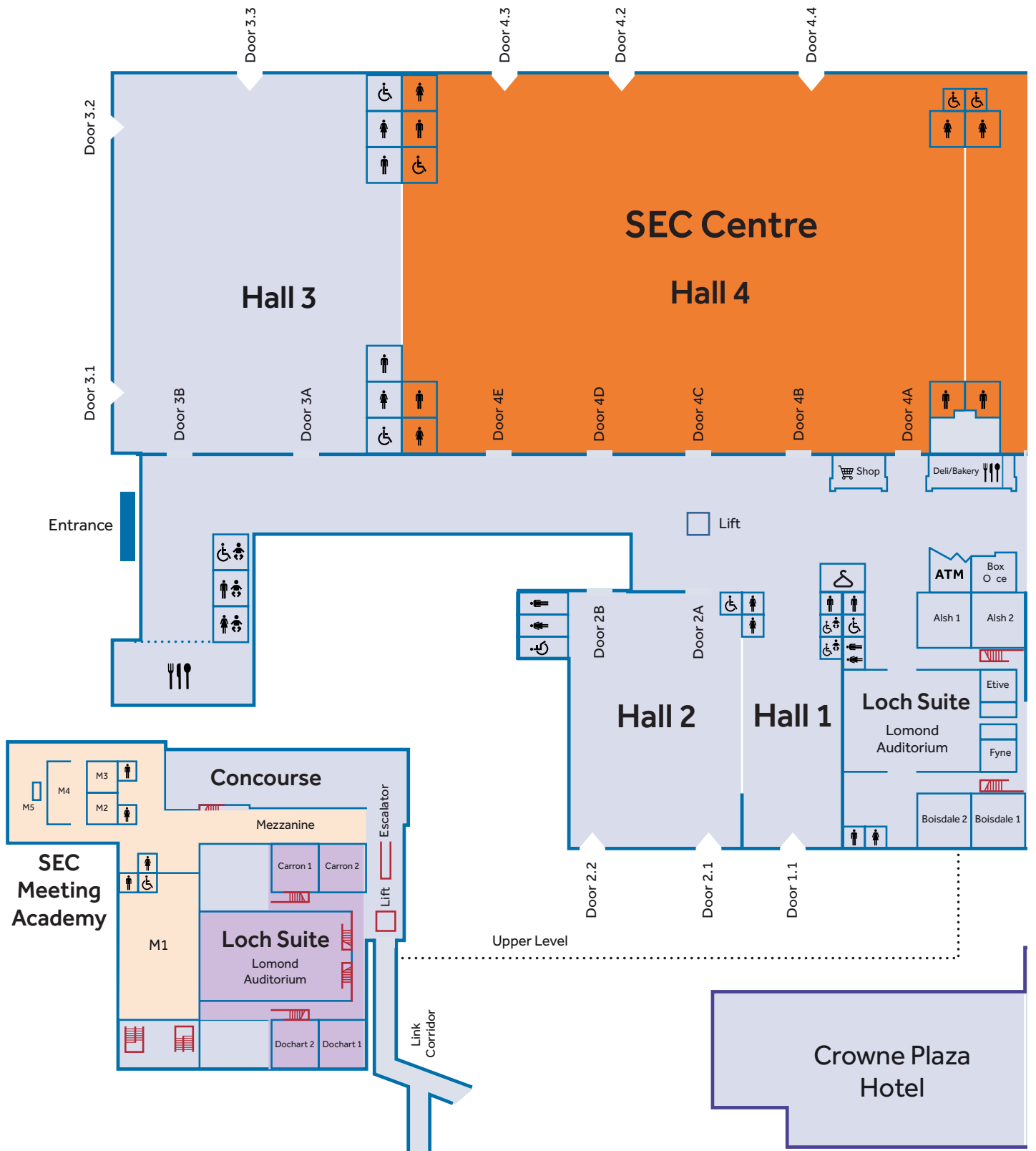
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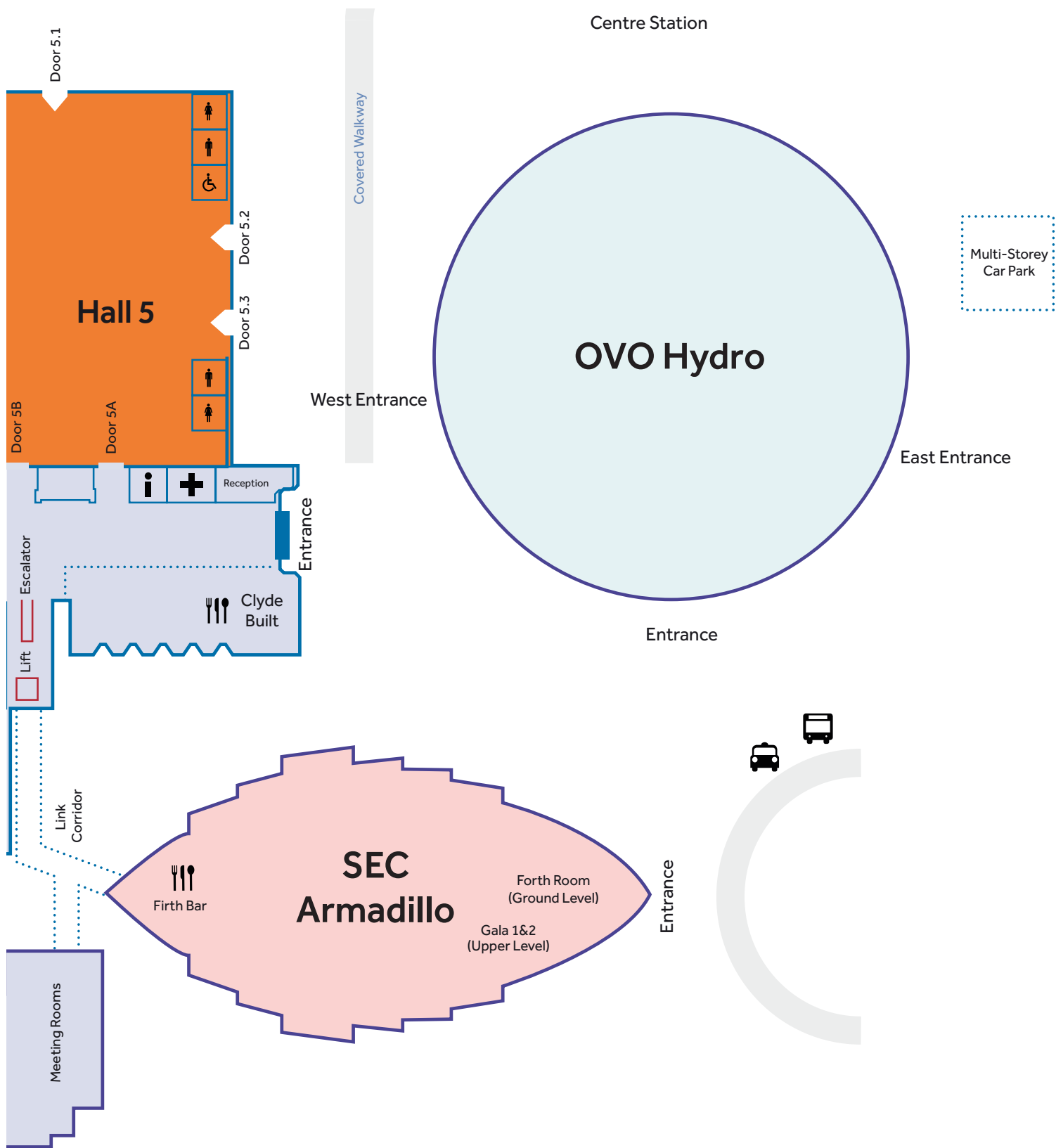


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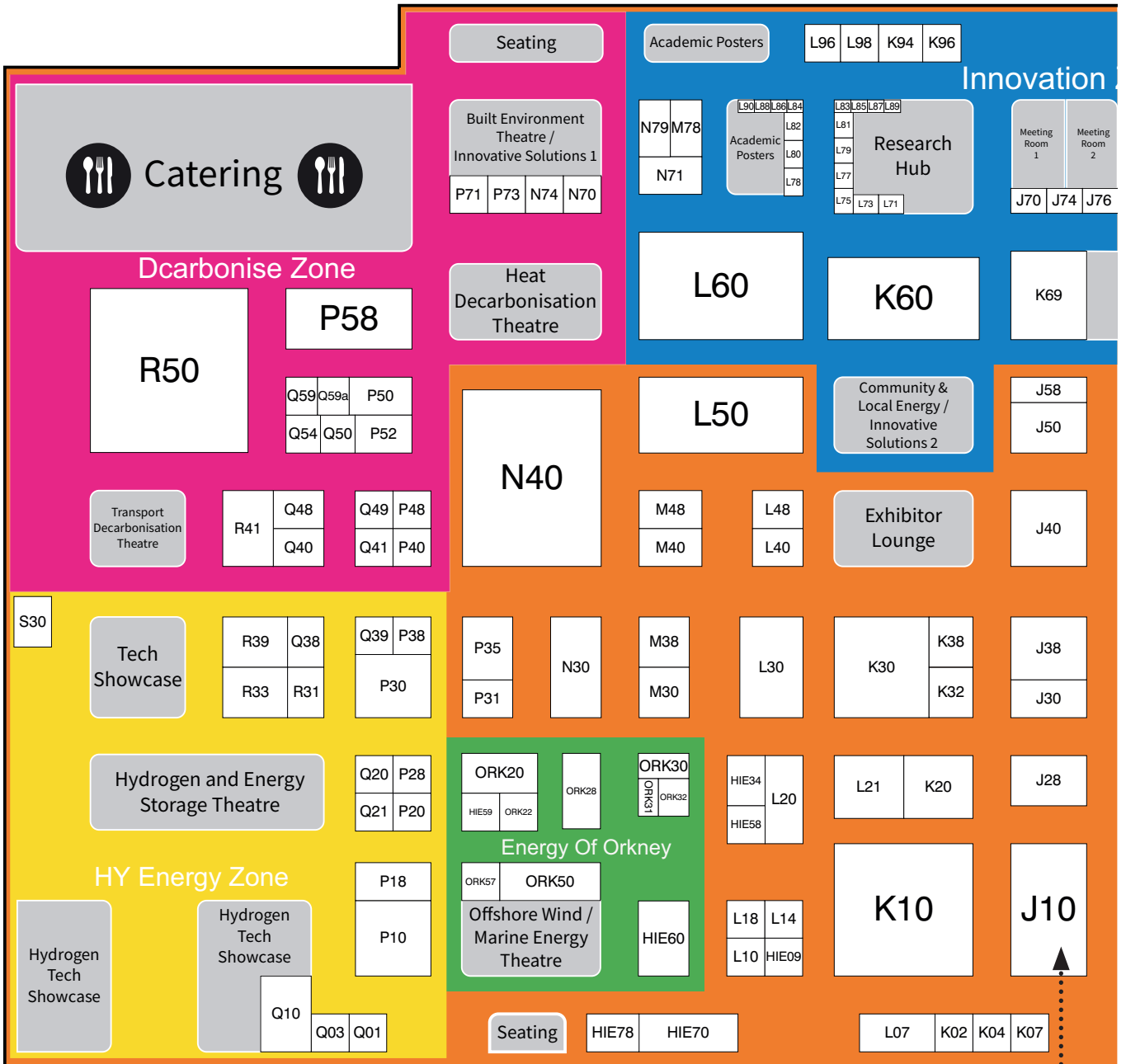
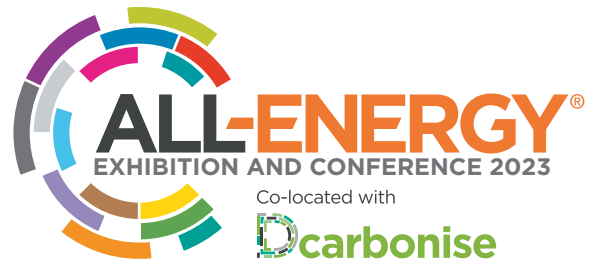


Site Plan





Floorplan



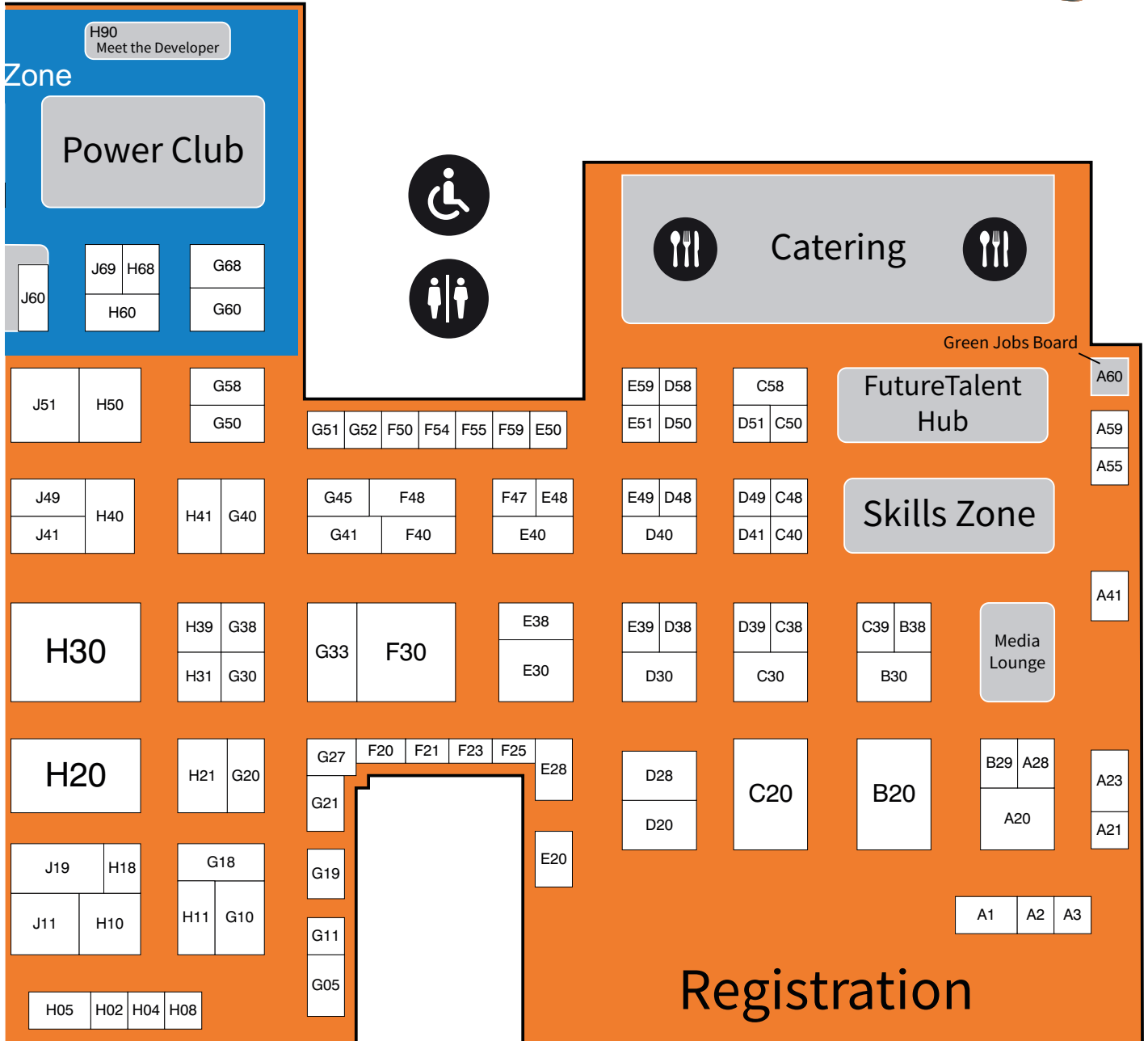
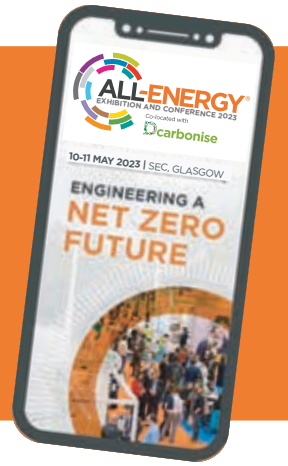
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2023 Exhibitors

List correct as of 28th April 2023, check the All-Energy and Dcarbonise App for the latest list of exhibitor's

1st Line Defence Ltd			
2G Energy Ltd			
360 Safety & Training / AAT Safety			
4c Engineering			
A			
ABB			
ActionZero			
Alimak Group UK Ltd			
Altrad Babcock			
Aquatera Limited			
Arnold Clark Finance Limited			
Arrow Corporate Promotions			
Asco Group Ltd			
Aspect Land & Hydrographic Surveys			
Atmos Consulting			
AW Synergy Boreholes Ltd			
B			
BayWa r.e.			
Beckhoff			
Bentall Microturbine Developments Ltd			
BigChange United Kingdom			
Boralex			
BOSCH			
Bosch Rexroth Ltd			
BP International Ltd.			
BPP Renewables Ltd			
Broen Valve Technologies			
Bruce Stevenson Insurance Brokers Limited			
BSG Ecology			
BSH			
Built Environment Smarter Transformation			
Bumblebee EV			
Business in Wind Projects BV			
C			
CalPac Resources Ltd			
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EDF Energy			
Effizency			
EMD International A/S			
Energys Wind Technologies (EWT) DirectWind UK Ltd			
ENERCON Wind Energy UK Ltd			
Energy and Climate Academy			
C50	Energy Industries Council		D48
J40	Energy Institute		A55
D40	Energy Skills Partnership		A40A
HIE78	Energy Systems Catapult		P71
	Energy Voice		A51
	Enspec Power LTD		H39
C30	Erova Energy		K38
P73	ETP		L75, L73
E59	ETZ Ltd		M48
R28	European Marine Energy Centre (EMEC)		ORK50, Q10
ORK32	Everoze Partners Ltd.		R31
R50			
K96	F		
D38	FES		H60
H41	Flanders Investment & Trade UK		H50
HIE09	Flexergy Ltd		L89
D41	Forsyth of Denny		J19
	Frazer-Nash Consultancy		M30
	Fuel Cell Systems		N30
	Full Circle Wind Services Ltd		H40
J11	G		
D49	Galooli		P48
L80	GBE S.p.A.		G40
E39	Geo Structural Ltd		H02
C58	Ges Group - Grants Electrical Svs		D51
P40	Gilbert Gilkes & Gordon Ltd		HIE58
P10	Glenevin Ltd		P38
K60	Global Water Engineering		H50
Q22	Global Wind Technology Ltd		L14
P58	Good Energy Ltd		D41
F25	green cat contracting ltd		J69
C48	Green Cat Hydrogen		P28
F20	Green Cat Renewables Ltd		H68
L78	Green Marine (UK)		ORK22
L81	Greentech Solar Farms		A20
D58	Ground Source Heat Pump Association		F55
	H		
	HORIBA UK Limited		Q21
	Humber Industrial Cluster Plan		L60
	Humber Zero		L60
	Hydrasun Ltd		N30
	Hynet Offshore		L60
	I		
	Industrial Systems and Control		L88
	Innovate UK		L60
	Innovate UK EDGE		L60
	Innovate UK KTN		L60
	Innovatium		K69
	Invest NI		B20
	Invest Northumberland		J58
	isoplus		P58
	ITALIAN TRADE AGENCY		N40
	J		
	Jeju, the Island of Green Energy / Invest Korea		B38
	Jerba Campervans		L85, J60
	K		
	Kamstrup		P58
	Kensa Utilities Ltd		N70
	Kingspan		P58
	Kishorn Port Ltd		HIE34
	Knights Brown Construction Ltd		G38
	Kyte Powertech		G20

L			
La Tene Maps	F23	ScottishPower UK LTD	H30
LiftWerx	F59	SECUMS INTERLOCK	F59
Locogen Ltd	F54	SEINGIM GLOBAL SERVICE SRL	N40
M			
Mabbett	H18	SEMCO GROUP	N40
Mage Control Systems Ltd	L86	Sequentec Ltd	P31
Mainhunter Aerospace Ltd	L87	Shell UK Limited	K30
Marsh Commercial	K07	Shell Eco-Marathon	R41
MCS Service Company Ltd	Q59	Shepherd and Wedderburn Lip	D20
Mersen UK Teeside Limited	H04	Shetland Islands Council / ORION Clean Energy Project	HIE70
Metacon AB	P20	Siemens Gamesa Renewable Energy GmbH & Co. KG	H20
METEODYN	J30	SLR Consulting Limited	G11
N			
Narada Europe	B30	SmartestEnergy Ltd	G60
National Manufacturing Institute Scotland	N71	Smith Brothers Contracting Ltd	G58
Natural Power Consultants Ltd	D30	Society for Underwater Technology -SUT-	Q03
Net Zero North West Cluster Plan	L60	Solar Daddy Group Ltd	Q39
Net Zero Teesside (NZT)	L60	Solar Energy UK	A41
Net Zero Tees Valley Cluster Plan	L60	SolarCleano SARRL	Q48
Net Zero Technology Centre Ltd	K69	South Wales Industrial Cluster - Deployment	L60
NLO	H50	South Wales Industry - A Plan for Clean Growth	L60
Norco Group Ltd	Q01	SSEN Distribution	C20
Nordex SE	D28	Stanley Black & Decker	J38
Northern Endurance Partnership (NEP)	L60	Statkraft UK Ltd	F48
Northern Valve & Fitting Company Limited	Q40,C38	STEAB SRL	N40
Northwards Ltd	ORK57	STUDIO MARTINI INGEGNERIA SRL	N40
Novuna Business Finance	F50	Supergen Offshore Renewable Energy Hub	M78
NSTA	F21	Swanbarton Limited	L98
O			
OEUK	G51	SWEP International AB	E20
Offshore Wind Power Limited	HIE59	T	
OMICRON electronics UK Ltd	H31	Team Scotland (includes Highlands and Islands Enterprise, Scottish Enterprise, South of Scotland Enterprise, Scottish Development International & Marine Scotland)	K10
Orbital Marine Power	ORK30	Terrendis	H50
ORE Catapult	J70	The Clarus Networks Group	G05
ORE Catapult Project TIGER	J74	Thistle Wind Partners (TWP)	E49
Orkney Islands Council - Marine Services	ORK20	Thrive Renewables Plc	D50
Outram Research Ltd	F47	TMC Transformers S.p.A.	J49
P			
Parat Halvorsen AS	M40	TNEI Services Ltd	E50
Pd&ms group	Q41	TownRock Energy Limited	N74
Peterson United Kingdom	H11	Triodos Bank	E51
Petzl UK	G18	Turnbull & Scott Ltd	Q49
Powersystems UK Ltd	G10	TUV SUD	D39
PROMAU SRL	N40	U	
Pure Renewables	P52	University of Exeter	L84
PyroCore	P50	University of Glasgow	L79,L77
Q			
Quocean Ltd.	P31	University of the Highlands and Islands	L90
R			
Realise Energy Services Ltd	G33	University of Strathclyde	G50
ReBlade Limited	J76	University of the West of Scotland	L82
Red Rock Power Limited	H21	V	
Renewable Parts Ltd	G30	Vensys Energy	J50
reNEWS	A1	VERDO	P58
REPCO SRL	N40	Vestas Celtic Wind Technology LTD	G31
Repowering The Black Country Cluster Plan	L60	Visualwind	H08
RES	L21	Volt Group (Scotland) Ltd.	P38
Rhopoint Components Ltd	S30	W	
RINA CONSULTING SPA	N40	Wave Energy Scotland	HIE60
Ripple Energy	E48	West of Orkney Windfarm	HIE59
RSK Group plc	F30	Wilson Power Solutions	G27
S			
Scot Industrial Air	L07	WINERGY	F40
Scotland's Net Zero Cluster Plan	L60	X	
Scotland's Net Zero Infrastructure - Offshore	L60	Xi Engineering Consultants	C40
Scotland's Net Zero Infrastructure - Onshore	L60	Xodus	L50
Scottish Hydrogen & Fuel Cell Association	Q24	Y	
Scottish Renewables	A2	Ylem Energy Ltd	C39
Z			
		ZENDURE USA Inc.	E40
		Zero Carbon Humber (ZCH)	L60
		Zero Waste Scotland	L10
		ZX Lidars	K04

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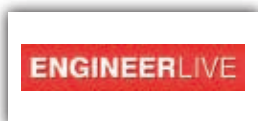
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Government's "Green Day" Announcements Underwhelming and a Missed Opportunity



The GSHPA has described the Government's "green day" announcements at the end of March as a missed opportunity and "underwhelming" for the UK's ground source heat pump sector.

To date, the UK government has simply failed to grasp the potential of this proven technology, which has been widely adopted across Continental Europe, and is critical to delivering the Government's existing heat pump target. The "green day" announcement could have been a major pivotal moment in the UK's transition to low carbon heat, but instead there is a disappointing lack of urgency around the limited measures announced to boost the heat pump sector.

Laura Bishop, Chair of the GSHPA said: "This has been a missed opportunity and underwhelming for the UK's ground source heat pump sector. Although we welcome the commitment to heat electrification, the £30 million heat pump accelerator fund, and announcements on 'rebalancing' bills and the BUS, much uncertainty remains. Long overdue changes to energy levies, for example, are not expected for at least another 20 months, which may yet be affected by the timing of the next General Election."

Laura added: "It's vital that the Government acts much more quickly on key issues such as the rebalancing of domestic energy bills, with more support for ground source heat pumps in the BUS to 2025, and the treatment of our technology in building regulations, if the UK is going to get anywhere close to delivering its 600,000 heat pumps per year target. Sadly, there was little in the Government's announcements to reassure the sector that there is real seriousness about delivering that major target in just five years' time."

About the Ground Source Heat Pump Association (GSHPA)

The GSHP Association is the focal point for business interests in the ground source heat pump industry. The purpose of the Association is:

- to provide benefits to members
 - to share best practice and develop and disseminate industry approved technical standards, training criteria and codes of practice
 - to promote the highest standards of integrity, professionalism and technical competence within the ground source energy industry
 - to represent the ground source heating & cooling industry, promoting sustainable use of heat pump technology and engaging with government and other bodies to influence relevant policymaking.

Members are promoted as the best choice for ground source heat services and but the association supports co-operation with others involved in the implementation of solutions to global warming and resource depletion, helping to raise installation standards across the ground source industry.

Powergen Renewable Energy Sustainability

Renewable energy sources for power generation can pave the way for a *sustainable energy future*, achieving *energy security*, economic benefits, and *low emissions*.

Sustainability, environmental protection, emission-free processes are critical decision factors in power generation today, and sustainable transformers can play a crucial role in achieving them.

Dry Type Transformers from TMC Transformers

TMC Transformers supports sustainable power generation from renewable energy by providing a broad portfolio of *dry-type transformers* suitable for the *power generation sector*. Transformers are vital in power generation and are widely used in *power generation plants, substations, and distribution systems*.

TMC Transformers offers sustainable transformers that allow efficient, reliable, continuous, and emission-free operations.

What Are Dry Type Transformers?

Dry type transformers are sustainable transformers that use *air as the primary cooling medium* instead of relying on oil or other liquids in the cooling system. They use natural or forced air ventilation for cooling, making them more beneficial than liquid-filled units.

How Do Dry Type Transformers Ensure Sustainability

High Reliability

Energy must be efficiently collected and distributed to be sustainable, and dry-type transformers guarantee high reliability regardless of environment or condition, with the *E4 C5 F1 certification*. Transformers operate by the principle of *electromagnetic induction* in power generation. TMC Transformers features an in-house *Finite Element*

Analysis (FEA) facility that allows studying complex electromagnetic circuits, thermal and structural performance to ensure the finished product meets the required levels of reliability and efficiency.

Reducing Emissions

Dry-type transformers *don't use any fossil fuel* in operations or manufacture, making them a far *greener technology* than oil transformers. They also feature increased efficiency, which translates to high energy savings and reduced emissions. Dry-type transformers feature *ECO designs* and use solutions like natural air cooling instead of oil solutions, guaranteeing low emissions and losses.

TMC sustainable transformers are protected from harsh conditions and atmospheric agents *thanks to high protection level* that makes them suitable for *outdoor installations, maintenance-free* and flexible for use in extreme environments.



We're referring to highly polluted areas and high climate class for transport, storage, and operation at very low temperatures (down to -50° for operation and -60° for storage and transport), and as well as resistance to fire hazards.

Conclusion

Whether you're running a small *hydropower plant* or need *outdoor auxiliary sustainable transformers* or *eco-designed transformers* for a *photovoltaic farm*, TMC Transformers has you covered! It features a team with over 30 years of experience designing and manufacturing dry-type transformers that meet applicable standards, technical specifications and customer needs. Check them out today to discover how sustainable transformers can help you achieve sustainable power generation.



www.transformers.com

Generate Energy with Ease

One-hundred kW can cover the average electricity demand of a little local shopping centre or can meet the energy needs of a whole edge data centre. With its plug-&-play 100 kW SOFC system, Bosch will provide a modular solution for heat and power supply scalable up into the megawatt range.

The solid oxide fuel cell (SOFC) technology itself brings various advantages for a decentralized and highly efficient energy supply. Its electrical efficiency of around 60% paired with usage of output heat reaches a high overall efficiency of up to 90%.

But how to integrate such an innovative technology?

The barriers for the technology entry can be big: high planning efforts, time consuming installation and potential failures through assembly errors.

That is why Bosch is developing a ready-to-operate solution combining several SOFC units to a whole prefabricated system. All relevant auxiliary systems and components required for operation, such as desulphurization unit, cables, and piping are already pre-installed and pre-assembled. It can be used outdoors in a version with housing but also in indoor applications. In this way it is easily integrable into existing infrastructures.

The Bosch SOFC system is currently in the pilot phase. All technical specifications given are development objectives and refer to the beginning of life.



Unlocking

Enabled with significant funding from the private sector and both the Scottish and UK Governments, we have a clear vision to reposition this region from the oil and gas capital of Europe to the Net-Zero Energy Capital of Europe.

Our focus of activity is twofold. First, we are the catalyst to create the Cluster. The delivery of successful energy transition will take investment in strategic infrastructure, technology innovation, supply-chain development and skills - and that's exactly what ETZ Ltd has been set up to do.

We utilise long-established connections across the globe, share knowledge and expertise and our experienced team are taking forward a range of initiatives and programmes designed to equip individuals and organisations with the skills and know-how needed to accelerate their own energy transition ambitions.

To date we have engaged with well over 500 companies across our various industry and supply-chain initiatives. Fit 4 Offshore Renewables, The Greenhouse Gas Emissions Reduction Programme, International Knowledge Exchange, Business Strategy & Development workshops, and Renewables Masterclasses have grown from strength to strength, and we will continue to deliver them.

Just last month we launched a £2 million ETZ Challenge Fund which offers capital grant funding of between £50,000 and £250,000 to be awarded to companies to accelerate innovation and market entry, support business growth, and create new jobs in the energy transition into the low-carbon market.

Secondly, we are delivering the focal point of that cluster: the Energy Transition Zone.

The Energy Transition Zone (ETZ) will be comprised of a significant majority of revitalised brownfield accommodation alongside a new release of development sites, providing businesses with the unique opportunity to invest in the largest dedicated energy transition complex in Scotland.

A comprehensive investment programme is underway to deliver market-ready, 'net zero exemplar' properties and development sites for high-value manufacturing and the wider energy transition supply chain.

This coordinated investment will include the creation of specialist campuses for Marine Development, Offshore Wind, Hydrogen, Innovation, and Skills. Within each campus, we are delivering a catalytic project that will secure an ecosystem unrivalled anywhere in the UK:

- **The Marine Gateway** will be unlocked by the new £400 million Aberdeen South Harbour - the largest port marine development in the UK - which will be crucial in supporting the growth of offshore renewables, particularly offshore wind and the Scotwind and INTOG developments.
- **The Wind Campus** will be anchored by the National Floating Offshore Wind Centre, a £9 million investment by ETZ and ORE Catapult to progress activity in which this region can be global leaders.
- **The Hydrogen Campus** will have the Green Hydrogen Test and Demonstrator as its focal point, accelerating high-value manufacturing opportunities, such as electrolyser manufacturing.
- A brand-new Energy Incubator and Scale Up Hub will be the centerpiece of our **Innovation Campus**, acting as an entry point for new and growing supply-chain organisations to receive support and flexible accommodation.
- We are building Scotland's first dedicated Advanced Manufacturing Skills Hub in the **Skills Campus** providing flexible teaching spaces, Technologies Demonstration & Teaching Facility, and a Welding & Fabrication Academy.

Potential

Chief Executive, Maggie McGinlay, introduces ETZ Ltd – the private sector-led and not-for-profit organisation tasked with spearheading the North-East of Scotland's energy transition ambition

ETZ Ltd has secured major private sector and public sector backing for the Advanced Manufacturing Skills Hub which will be announced in the coming weeks. Last month, we announced that bp and Scottish Enterprise will be funding partners for the Scale Up and Incubator hub.

I'm also very pleased that, despite the fact that we are in the early days of the Zone's development, we have already welcomed private sector tenants to the Zone. Last month, Trojan Energy, one of Scotland's fastest growing cleantech businesses, co-located their headquarters in the Altens Industrial Estate, with a pledge to double their headcount in Aberdeen.

We will be announcing a range of new tenants in the Zone throughout 2023, and I'm particularly encouraged by the sheer scale of interest in this region by international companies and investors, some of whom have no previous operations in the UK. Our focus this year will be turning that interest in to a commercial reality.

Owing to our world-class oil and gas industry, this region is home to a major portion of the world's subsea engineering capability

and the highest concentration of energy supply-chain companies anywhere in the UK.

It is indeed that critical mass of skills, experience and financial capital that will be so crucial in accelerating our diversification to new and green energies – creating a domestic renewables industry that is the envy the world.

And the opportunities in these energies are huge. A majority of the ScotWind licences are within a 100-mile radius of Aberdeen and will add up to 28 gigawatts of offshore wind to the UK in the next 10 to 15 years with investment expected to surpass £8bn.

The region is an ideal place to foster CCUS in the UK, given the capacity for CO₂ storage in the North Sea and the existing oil and gas infrastructure available to repurpose for CO₂ transport and storage, and a further one gigawatt of low-carbon hydrogen can be generated in the region by 2030.

Taken altogether, this region is, without doubt, one of the most attractive locations in the world for investment in low-carbon technologies, and our job at ETZ Ltd is to unlock that investment to its fullest potential.

Accelerating Development of **Wind, Solar** and **Battery Storage** in the UK

With Infinergy's integration now complete, Boralex is ready to step things up, boosting deployment of development capital and operation capabilities in the UK

Boralex owns a UK portfolio of 448MW in wind, solar and battery-storage projects, mainly situated in Scotland. And, whilst Scotland remains a key area, activities are also increasing in the other home nations.

Boralex's construction team is now preparing to build out the 24-turbine, 108MW Limekiln Wind Farm in Caithness, which will be operational in 2025. Operating a sizeable project such as Limekiln is an important step for the future development and operation of projects in the UK.

"The UK represents a high-potential market for developing onshore wind as well as solar and energy storage facilities. It is also a great contribution to the geographic diversification of our activities, a key element of our Strategic Plan. We are confident that our experienced UK team can get the pipeline successfully operational in the coming years," said Nicolas Wolff, Vice President and General Manager of Boralex, Europe.

Boralex has been providing affordable renewable energy for over 30 years as a developer, builder, owner and operator of hydro, onshore wind, solar PV, and battery storage. A leader in the Canadian market, Boralex also has facilities in the United States and is France's largest independent producer of onshore wind power, which accounts for 1.2GW of its 3GW in operational assets in France.

The company's Strategic Plan sets out its ambitions to increase its worldwide installed capacity to 4.4GW by 2025. Apart from a substantial increase in the number of wind and solar projects, other approaches to reach this target include project optimisation and diversification such as developing battery storage and deployment of improved technologies – for example, solar tracking systems and floating solar developments.

The plan estimates that achieving this aim will take an investment of £3 to 4 billion. The UK operation is set to take its fair share, given the projects in the development pipeline, of which Limekiln is the first under construction. With an established track record of over 25 projects representing approximately 700MW, the UK team strengthens the extensive project development capabilities of Boralex.

Boralex's Corporate Social Responsibility (CSR) strategy, key to its values and culture, runs through all Boralex's activities. The company's achievements in this field are being widely recognised, not only by investors and partners, but also by third-party firms specialising in this field.

The Strategic Plan's further objective is to reach 10 to 12GW of installed renewable energy capacity by 2030. The UK is expected to contribute 1GW towards this target.

“The UK represents a high-potential market for developing onshore wind as well as solar and energy storage facilities. It is also a great contribution to the geographic diversification of our activities, a key element of our Strategic Plan. We are confident that our experienced UK team can get the pipeline successfully operational in the coming years”

Nicolas Wolff,
Vice President and
General Manager of
Boralex, Europe

UK Country Manager Esbjörn Wilmar said: "This is a very exciting challenge for us. It will take many sites and a lot of hands to achieve, but we have the resolve, the financial backup, and the technical expertise to rely on. We invite sector colleagues to come and talk to us about job opportunities. We invite landowners, communities, and businesses to discuss mutually beneficial business opportunities. We are looking forward to bringing our growing portfolio of projects in wind, solar and battery storage to fruition, as well as growing our team to help make that a reality."

Boralex is opening a new office in Edinburgh, while maintaining its base in Wimborne, Dorset. There are a number of positions to be filled by the end of 2023, with more roles anticipated for 2024.

For more information visit [Boralex.com](https://boralex.com) or meet the Boralex team at **stand C58** during All Energy.

BORALEX
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District Heating Project in Amsterdam Aims for Near Fossil-Free Future

District heating offers the promise of a simple solution for the supply of low-carbon heat to homes, businesses, and public buildings. While much of Northern Europe is moving ahead with innovative projects and solutions, like a heating initiative in Amsterdam that will heat up almost a third of a million households in Amsterdam by 2040, the UK is lagging behind with just over 2% of UK homes connected to a district heating network



In the early 1990s the city of Amsterdam set out on its decarbonising heat journey in a joint venture partnership with Vattenfall, one of the largest energy suppliers in the Netherlands. Since those early days, the Amsterdam district heating network has gone from strength to strength.

District heating delivers comfortable and environmentally friendly heat, coming from a combined heat and power plant. The heat is released when electricity is generated and can be reused for heating residential areas and industrial estates. This way of heating requires almost no extra gas.

To enable more and more households to be able to benefit from district heating, over the past few years Vattenfall has been expanding the heat network in south-east Amsterdam, by laying extra pipelines and building a heat transfer station. Integral to this is the Hakfort Heat Transfer Station, which is transferring heat from the main heat network based in Diemen to the new area of Amsterdam Zuidoost (south-east), benefiting existing and new customers as more housing is developed.

SWEP is a leading supplier of brazed plate heat exchangers (BPHEs), and got involved in the pre-tender stage of the project back in 2018 after Vattenfall had appointed Croonwolder&dros as lead contractor for the project. Vattenfall's project team specified a requirement for brazed plate heat exchangers and ended up selecting gasket-free heat exchangers that are cost effective and compact with little component wear and thereby minimal maintenance required. Ninety-five per cent of the material used in the heat exchangers is used for heat transfer.

Vattenfall's Hakfort project showcases one of Europe's largest capacity heat transfer stations utilizing brazed plate heat exchangers. Vattenfall's large-scale investment is enabling the expansion of the Amsterdam district heating grid so that by 2040, some 290,000 households will benefit.

Residents and companies with district heating and sustainable cooling achieved 55% fewer CO₂ emissions in 2020 in the south-eastern part of Amsterdam, compared to gas-fired central heating systems. This will improve further in the coming years by using new, sustainable heat sources.

The last word belongs with Vattenfall, whose project manager concludes that: "Vattenfall is already actively developing multiple sustainable sources for its heat network and making them available to the entire city of Amsterdam. Looking to the future, Vattenfall plans to deliver fossil-free heating solutions within one generation."



Project highlights

- 290,000 households to be connected by 2040
- One of Europe's largest capacity heat transfer stations utilizing brazed plate heat exchangers (BPHEs)
- 6 BPHE units make up the 84 MW capacity

84 MW	Primary side	Secondary side
Design pressure	25 bar	15 bar
Temperatures	125° > 71°	66° > 120°

How Onshore Wind Farms Can Enhance the UK's Peatlands

Recent policy and planning updates have put the spotlight on the crucial need to protect peatlands. Atmos ecologist, Connor Mckinnie discusses the importance of our globally important peatlands and how through effective engagement at an early stage of the design process they can not only be maintained but enhanced



Onshore wind developments are a key element in helping to tackle the global energy crisis and reducing impacts in terms of wider climate change. In the UK, onshore wind farm developments are often in areas with high coverage of peatlands due to their location on exposed moorland environments. Such environments offer prime locations for efficient wind energy production.

Peatlands are a vital carbon sink which lock away millions of tonnes of carbon over thousands of years. It is estimated that UK peatlands contain a staggering 3.2 billion tons of carbon.

They are considered an internationally important habitat and support a wide variety of wildlife including rare plants and insects as well as birds and amphibians. Wading birds such as the golden plover and dunlin depend on the unique vegetation found on bogs, while the threatened large heath butterfly feeds and nests here.

Peatlands provide over a quarter of the UK's drinking water (ONS UK Natural Capital: Peatlands). Healthy peatlands are carpeted in Sphagnum mosses and function as giant sponges, storing vast volumes of water. This slow release and filtration of water is critical in alleviating the risks of flooding in lowland areas and also helps to clean drinking water.

Unfortunately, historical human activities such as draining and burning have negatively impacted on about 80% of the UK's peatlands. Recent studies suggest that degrading peatlands in the UK currently contribute to around 4% of our overall greenhouse gas emissions.

As peatlands start to dry out, they lose their water retention ability, leading to reduced water quality and increased flood risk downstream. Additionally, drying peatlands are more vulnerable to fires, which can increase CO₂ emissions and harm wildlife. Such factors partly explain the increase in flooding and wildfires that we have experienced in recent years.

A common misconception is that onshore wind developments only further negatively impact on peatlands, through processes such as soil erosion and disturbance of habitats. However, with effective design and early engagement with environmental specialists, these developments can have many positive impacts.

Atmos Consulting has successfully supported numerous developers in assessing the suitability of sites for development and informing the best possible design and layout options in order to avoid sensitive habitats and areas of deep peat.

Our survey work and GIS analysis can help identify areas of degraded peatland on sites that can be improved as part of the mitigation and habitat enhancement measures outlined within the application – compensating for controlled loss of peatland habitat, or even making overall positive improvements to biodiversity.

Through the application of Peatland Management Plans it is possible to mitigate against potential losses by re-using excavated peat from development sites to restore areas of dry and degraded peatlands, often with an overall net positive benefit.

Degraded areas can be successfully restored using a number of methods including peat hag reprofiling and damming gullies. Reprofiling can prevent further erosion of peat hags and encourage new vegetation growth while damming gullies and ditches helps hold back water and create bog pools.

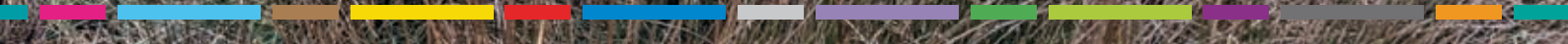
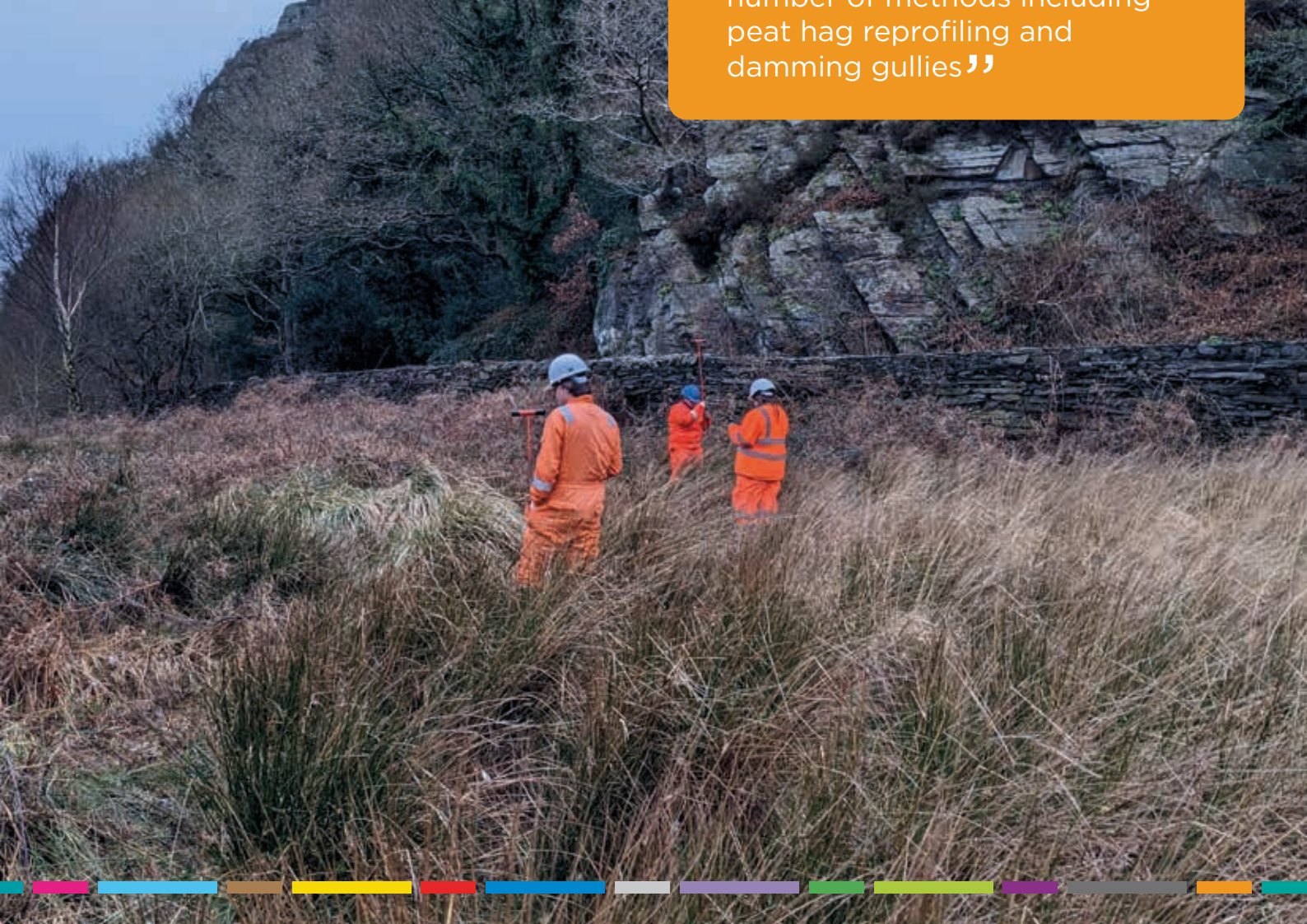


Using habitat restoration methods like these, it is possible to reverse the fortunes of a damaged peatland and create a functioning, productive habitat which is more hydrologically robust and brings value to wildlife.

Through careful design and management of wind farms, we can strike a sustainable balance which yields benefits for the climate, biodiversity and people



“ Degraded areas can be successfully restored using a number of methods including peat hag reprofiling and damming gullies ”



Global Chip Shortage Leading to Change in Business Models across Energy Industry

The global shortage of semiconductor chips has led to many energy organisations changing the way they acquire equipment, according to Dräger Marine & Offshore, a subsidiary of Dräger, a leader in the fields of safety and medical technology

The company has reported an increase of more than 20% in the rental of equipment following the opening of its new sales and training centre in Aberdeen – and part of the rise has been put down to supply issues in various global industries.

Matthew Bedford, Dräger Managing Director UK & Ireland, said: “Customers haven’t been able to get the equipment they need as easily as they once could, with some manufacturer lead times across the globe reaching up to six months. However, by hiring equipment such as gas detectors and breathing apparatus, customers can receive what they need sooner, sometimes within hours of placing an order.

“We have found a lot of customers who would traditionally have bought their own equipment are now looking more at the rental market, and that, coupled with the investment we made in our stock, has proved positive for us. It is a market that we see continuing to grow throughout 2023 and beyond. We have seen a rise in the number of rentals in different areas of the business across the whole organisation, which is an indication of the way the general market is going.”

“It’s really exciting to have these conversations with the people that are engineering the future – our role is to try to make sure they engineer it well, and they engineer it safely”

As well as investing £600,000 in on-site stock availability, the company last year moved into a new 2,000m² site in ABZ Business Park, helping play its part in the increase in activity for Dräger Hire, a division of the UK business that offers cost-effective, efficient and flexible support, tailored to meet specific client-safety challenges.

The multi-million-pound facility is home to a confined space training unit and service and maintenance centre, while it can also provide a variety of classroom-based courses for the offshore and marine industry.

The investment is the latest move from the organisation to reinforce its commitment to the energy industry. Dräger is also the only safety equipment manufacturer based in Aberdeen, with a large team – including sales, customer service representatives, trainers, service engineers and operations – able to support customers across the sector.

“Customers see us as trusted advisors rather than just suppliers,” said Matthew, “and being able to get everything they need for their operations from advice to kit in one place makes everything quicker and easier for them.”

Dräger Marine & Offshore Marketing Manager Euan McIntosh said the relationships and reputation the company has built in the marine and offshore industries has been crucial to its success.

He said: “A lot of the projects that we’re working on have been long-term relationships, and we are advising customers a month or two before the work actually begins. We’ll go to the site and carry out surveys, working with the technical teams and drilling teams to establish precisely what they need. That early engagement with customers is crucial as there can quite often be a smarter, more efficient way of doing things.

“The investment in the infrastructure and facilities has been huge because we’ve been able to scale up our offering with more kit readily available. We have been able to host many ‘lunch and learn’ sessions which have been beneficial for current and prospective customers, as we can find out what their challenges are and talk about what we can do to help.”

Dräger has been providing complete safety solutions to the energy sector since oil first flowed from the North Sea, and can be your safety partner of choice, now and for the future. This can include providing flexible hire or purchase options for protection and detection equipment, fire, rescue, safety and lifesaving products, and also related services such as maintenance, repair, and training. Its service and maintenance offer also ensures equipment is assessed to the highest standards and in line with manufacturer and HSE guidance – a must for the industry.

As part of the company’s desire to help organisations adapt to the energy transition, it has promoted Megan Hine, who was previously Account Manager – Fixed Gas Detection Systems, to the role of UK Business Development Manager Clean Energy.

Megan, whose role will include a focus on ensuring companies are aware of potential challenges and safety considerations as early



Matthew Bedford



Megan Hine

in the process as possible, said: “The move away from a carbon-based economy has to be done swiftly, but above all it has to be done safely.

“Making sure we manage the change well is crucial, and as with anything that requires a degree of speed, there isn’t always the time to be as thorough as we should be.

“The creation of this role will allow us to be even more involved in projects from the outset, working on systems several years before they go live. We can’t have setbacks caused by poor safety because, in the end, they’ll harm the overall goal of reducing carbon emissions and protecting the planet for future generations.

“Not only does this mean the activity has a trusted advisor from the beginning, but by using Dräger’s products through the lifecycle of projects, customers are able to enjoy the benefits such as equipment being serviced by suitably competent technicians, ensuring it complies with Health & Safety Executive (HSE) regulations.

“It’s really exciting to have these conversations with the people that are engineering the future – our role is to try to make sure they engineer it well, and they engineer it safely.”

Matthew added: “There are many risks people won’t necessarily be aware of, and therefore a large part of this role will centre around the education of a safe transition. We are all about doing things right, making sure that everyone is safe and goes home

when their work is done. The creation of this position is a move that will ensure that ethos continues.”

Megan’s new role covers the entire Dräger safety portfolio including offshore fire, fixed gas, breathing apparatus and marine lifesaving equipment.

She added: “The company is geared towards ensuring the future is sustainable, and part of doing that will be through educating the industry and supporting the next generation of engineers.”

Megan is one of three Dräger experts appearing in an upcoming Sky TV documentary. The programme – A New Focus for Industry – also includes insights from Head of Safety Marketing David Head, and Academy Authorised Trainer Billy Geddes.

In the show, the trio talk about how demand-driven innovations can leverage progress toward greater sustainability and improved employee safety, including how the ever-changing technology, coupled with a widening national skills gap in manufacturing, mean advances in training are needed to meet the challenges of today and tomorrow.

David said: “Innovation is key to keeping pace with sustainability. We need to continually examine how we develop and package products, and our internal processes, to ensure we reduce our impact on the environment.”

A New Focus for Industry airs this Sunday (14 May) at 10am on channel 181

The Benefits of Co-Location

BayWa r.e. discuss their new pilot project and their confidence that co-location will be a factor in answering many of the energy related questions facing Scotland

In the UK, we often find that if it is very windy then it is not sunny, and if the sun is shining, it is often not windy. We also find that in between these two extremes there are days with some sun and some wind, but not enough of either to result in their respective renewable technologies to be operating at peak performance. These weather conditions can result in periods where grid connections are not being fully utilised by standalone wind or solar farms, and this is when the concept of co-locating renewable energy technologies comes into play. The very nature of wind and solar means that they are well matched, as their required weather conditions tend towards the opposite ends of the spectrum.

Co-locating solar and wind projects through the installation of ground mounted solar panels on existing wind projects would allow the energy produced from the solar panels to share the existing operational grid connection used by the wind farm. As with many wind farms across the UK, the grid connection has an annual utilisation rate of around 30%. This means that 70% of grid capacity, is not being used. The introduction of solar panels to a wind farm would help to improve the low capacity factor that is so commonly present across operational wind farms. The two technologies will be able to work independently of one another when the weather conditions mean that one technology is at full utilisation, as well as simultaneously on days where both are working, but below full power.

In addition to that, co-location is a technology that provides an opportunity to economically introduce solar power into Scotland. Standalone ground mounted solar farms can be harder to develop in Scotland when compared to projects south of the border. This is due to various factors such as lower irradiance levels, the geography of the land resulting in fewer easily developable sites, national grid constraints and high grid connection and utilisation costs.

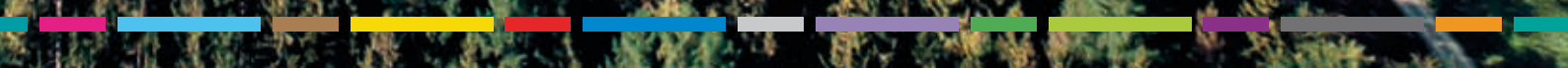
We at BayWa r.e. have conducted initial design studies, which have identified an area with the potential for a significant solar PV project on an existing wind farm by focusing on areas on the hilltop with gentle slope gradients that would be compatible with ground mounted solar panels. The identified area would not suffice for a standalone solar project, but with a wind farm already on site, this currently unused piece of land can maximise the energy produced at this project location. The existing grid connection will mean that the area is refined to a 25MWp development, with environmental studies highlighting the areas of the site that are best suited for the solar panels.

The operational nature of the wind farm also comes with further benefits for the project as the infrastructure for both site access and grid connection are already in place, and existing environmental constraints are understood. This may allow for development to be completed faster than on a traditional ground-mounted site.

BayWa r.e. are excited to progress with the pilot project, and are hopeful that co-location will be the answer to many of the energy related questions facing Scotland, helping the government to achieve its 'Net Zero' targets.



“As with many wind farms across the UK, the grid connection has an annual utilisation rate of around 30%. This means that 70% of grid capacity, is not being used”



Making the Energy Transition Happen

Euan Munro, Principal Process Engineer at SLR Consulting discusses the priorities for business

We are faced with the trilemma of needing to rapidly decarbonise our economy while meeting our energy security needs and ensuring a just transition for all communities. A confluence of events and discourses such as the Ukraine war, Climate Change and meeting the Paris Agreement commitments are bringing into sharp focus the critical need to provide a clean energy transition. Supported by competitive technology solutions, political commitment, and aligned incentives and policies in tandem with climate finance, the ability to meet this critical need is within our grasp.

The transition to clean energy will require an unprecedented level of investment, cooperation and collaboration between governments, businesses, energy companies, and citizens. Governments have a key role to play in incentivising and supporting the creation of a cleaner energy landscape through the implementation of appropriate fiscal policies, regulatory reforms, and targeted public investments, which have already begun under REPowerEU legislation and amendments in the Fit for 55 and Renewable Energy Directive.



Energy companies must also be actively involved in the process, investing in the development and deployment of new technologies and infrastructure. They must also ensure that the supply chain they use to procure materials and finished goods is managed responsibly and sustainably.

At the same time, citizens and businesses must play their part in transitioning to clean energy, by making informed choices about their energy consumption and being aware of the environmental and social

impact of their energy use. This could involve investing in energy efficiency measures, choosing renewable energy sources, or engaging in energy-saving practices.

One particularly daunting thing about the energy transition is the myriad of options available, with legitimate concerns that whatever option is chosen might not prove to be a winner in the longer term. Hydrogen, for example, has a rainbow of different colours besides green – depending on the source –, and a battery storage developers have yet to decide whether to use lead-acid, lithium-ion, or flow batteries – or even look at the developing area of bio-batteries. That is also missing the fact that batteries are not the only method of storing excess renewable electricity; you might also consider pumped hydro or storing compressed air underground.

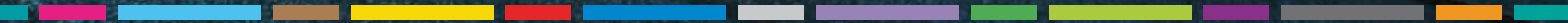
The landscape of energy production and distribution is going to be fundamentally different and will also come from a very broad range of sources. If you consider the specifics of your requirements and get the right advice on meeting these needs, then there will be a workable solution that reduces your fossil fuel consumption.

Ultimately, the transition to clean energy will require a concerted and collaborative effort from all stakeholders. Businesses, governments, and citizens must work together to develop and implement solutions that maximise the benefits of clean energy while minimising the environmental and social costs. By doing so, we can create a cleaner and more sustainable energy landscape, and a better future for generations to come.

As a business you should consider the following actions:

1. Explore opportunities for on-site, decentralised renewable energy generation and storage to meet operational needs (e.g., heat pumps, solar PV, wind, battery)
2. Undertake technical feasibility assessments for fuel switching and/or energy efficiency options to decarbonise your most intensive processes
3. Explore the broader energy transition ‘ecosystem’ local to your business operations, and become an active member of regional zero/low-carbon hubs.

“The landscape of energy production and distribution is going to be fundamentally different and will also come from a very broad range of sources”





Maximising the Potential for Farm Diversification

Greentech explains what it can bring to good partnerships for ventures into solar PV and battery storage

The solar industry is experiencing phenomenal global growth. The technology, enhanced by the advancement of battery storage, goes from strength to strength. We are now able to deploy solar into areas previously thought unviable. A positive example of this is the expansion of ground mount solar farms into areas of high latitude, such as in Scotland.

Alongside the advances in technology, however, we see also the increase in electricity prices balanced by the need for energy security – giving us almost the perfect storm. Farmers, meanwhile, want to diversify and create secondary income streams to maintain a profitable and sustainable farming business whilst contributing to reduced carbon emissions. Not only does this help save the planet; it also creates a legacy for their children and grandchildren. This shift in the solar industry has led to a viable commercial business model that facilitates the lease of land for solar farms in Scotland.

Land availability, and the capacity on the grid to accept the electricity produced from renewable sources, are important factors that make a project financially viable. The national grid infrastructure is saturated in many parts of the UK. The cost, and timescales involved in upgrades to the grid can be extreme. Generally, solar farms need to be a considerable size in order to overcome the electricity grid constraints and the lack of government subsidies. The upside for landowners is that more land is required, resulting in higher guaranteed rental incomes payable to them over a period, typically of 40 years. More and more solar farm developers are showing an increasing interest in Scotland as a location to build solar farms. Even though the irradiation is lower than it is in more southerly parts of the UK, the construction of larger projects can prove financially viable.

Rents offered to landowners are competitive when compared to the agricultural income that is achieved through farming; it also provides the advantage of stable and consistent return when compared to working the land and managing the fluctuating input costs and farm gate prices. The rental income is index linked and increases every year in line with inflation. Landowners tell us that this certainty gives them peace of mind as the income is guaranteed, enabling them to plan ahead.

An income that is guaranteed to increase every year is an effective component of a farm diversification strategy. Greentech have been developing, constructing and managing the ongoing operations and maintenance (O&M) of solar farms for many years and make good partners for a venture into solar PV and battery storage. We don't just manage the solar asset; we also take care to manage the land on which it is constructed. The solar farm is designed to ensure that agriculture, such as grazing sheep, can continue, and the land can be restored to its original state after 40 years. Alternatively, the land can be used to create wildflower meadows and Greentech will often invest heavily to establish new hedgerows and other ecological improvements.

Greentech will also manage the consenting process with local councils and other government bodies to ensure that that the solar farm meets with the broad acceptance of the local community. The impact of climate change is now very real and not simply problem for the future. Many local authorities and communities appreciate the need and urgency to rapidly expand renewable energy production. Greentech is determined to be at the forefront of this sea change in focus and to play a key role in Scotland's energy transition, whilst making Scotland a leader in renewable energy production.

EXHIBITOR ENTRIES



1st Line Defence Ltd C50

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1st Line Defence are one of the leading providers of Unexploded Ordnance (UXO) risk mitigation measures in the UK. We provide solutions to the risk posed across the UK and around the world both on land and offshore from unexploded bombs and munitions related to current and former military land use, aerial bombing and conflicts. With headquarters in the UK and an office the USA, 1st Line Defence have the capacity and capabilities to safely remove UXO risk across the UK and Internationally, both on land and at sea.

2G Energy Ltd J40

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 E: i.forsyth@2-g.com
 W: www.2-g.com/en

2G Energy is a global leader in the CHP industry. Specialists in the supply of high-efficiency CHP systems for natural gas, biogas and hydrogen, we have a power range between 20 and 2,000 kilowatts, for all the electrical power you need. Our technology reduces long-term energy costs and creates independence from the ever-increasing electricity prices. View our full range at www.2-g.com.

360 Safety & Training / AAT Safety D40

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360 Safety & Training provide a range of training courses, including GWO modules and product specific training. Our client based approach ensures that the courses we deliver meet the client's needs as well as the learner's. Visit us to find out more on our blended learning. AAT Safety provide a wide range of support services from statutory inspection to supply of equipment. Our focus is to reduce turbine visits by multiple contractors and increase turbine availability. Visit our stand to find out more about the JibFlex flexible davit beam.

4c Engineering HIE78

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 W: www.4cengineering.co.uk

As experts in Technology Development and Engineering solutions, we offer bespoke technology development packages tailored to your project's needs, at any stage of the development process. At 4c Engineering, we provide a comprehensive range of services to take your idea from concept to reality. Our services include assessing your technology's progress, generating innovative concepts, conducting mechanical calculations, detail designing, simulating and 3D modelling, building and testing prototypes, creating concept visuals and engineering the full-scale product for efficient manufacturing.

ABB C30

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ABB is a technology leader in electrification and automation, enabling a more sustainable and resource-efficient future. The company's solutions connect engineering know-how and software to optimize how things are manufactured, moved, powered and operated. Building on more than 130 years of excellence, ABB's 105,000 employees are committed to driving innovations that accelerate industrial transformation. We collaborate with customers and partners to enable energy efficiency and power a sustainable future for society with our products, solutions and digital technologies.

**ActionZero P73**

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At ActionZero, we produce a patented high temperature heat pump technology, called the EscoPod, which is designed to replace traditional heating systems with a high efficiency, fossil fuel free alternative. The EscoPod has industrial, healthcare, commercial and public sector applications. We enable organisations to: eliminate fossil fuels and carbon emissions, produce multifunctional outputs for heating, cooling and domestic hot water, avoid costly & disruptive building fabric and mechanical system upgrades and reduce energy use and costs by up to 70%.

Alimak Group UK Ltd E59

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For further information on our products and services please visit our stand.

Altrad Babcock R28

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Altrad Babcock is specialist engineering company with over 130 years of heritage in the energy industry with significant experience across critical industries such as chemical, petrochemical, refining, nuclear, infrastructure and low carbon energy sectors. We offer a range of engineering and construction services across these areas. Our experience in the design, build and test of technology demonstrators and pilot plants, together with our position as a leading UK-based engineering and construction specialist make us a trusted partner to deliver on Net Zero ambitions.

Aquatera Limited ORK32

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Environmental, sustainability and operational support delivered internationally. Clients include technology developers, utilities, agencies and government. Aquatera provides fully integrated renewables support, strategic planning, public, stakeholder engagement, environmental assessment and surveying.

Arnold Clark Vehicle Management R50

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Arnold Clark Vehicle Management is proud to showcase the future of transportation at the All-Energy Conference 2023. With a number of our product geniuses on hand to answer all of your questions on alternative fuel vehicles and exciting new car technology, you'll also be able to see the vehicles first-hand and book a test drive for a later date. Our friendly sales team will be available to chat through all of our EV solutions including Arnold Clark Salary Sacrifice, contract hire and daily rentals. We offer our customers advice to help guide them through the electrification of their fleet.

Arrow Corporate Promotions K96

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For further information on our products and services please visit our stand.

ASCO D38

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ASCO is the leading logistics and materials management supplier for the energy industry, providing the world's largest operators with solutions underpinned by the three pillars of safety, service excellence and sustainability. Digitalisation is at the heart of all operations and innovative processes ensure ASCO is at the forefront of driving supply chain efficiency.

Aspect Land & Hydrographic Surveys H41

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An ISO PAS99 accredited survey company offering topographic, hydrographic, oceanographic, marine environmental & aerial surveys throughout the UK & Europe. Our expertise comes from experience across a range of survey disciplines, offering fully integrated turn-key solutions to a wide range of clients.

Atmos Consulting**HIE09**

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Atmos Consulting is a leading independent environmental & planning consultancy offering a comprehensive range of solutions to the energy sector. Our purpose is to enable sustainable development that realises our client's vision, protects the environment and enhances the world we live in.

**AW Synergy Boreholes Ltd****D41**

Littleton Manor Farm, Bicester Road,
 Waddesdon, Bucks, HP1 0JR, UK

For further information on our products and services please visit our stand.

BayWa r.e.**J11**

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Based in 29 countries, with revenues of almost USD 4.2 billion, BayWa r.e. is a leading global renewable energy developer, service provider, distributor and energy solutions provider, and is actively shaping the future of energy. BayWa r.e. delivers end-to-end project solutions, ongoing operations management and is an Independent Power Producer with an expanding energy trading business. Using our innovation, creativity and expertise, we have successfully brought over 4.5 GW of renewable energy online, while managing over 10 GW of assets.

Beckhoff**D49**

Station Road, Henley-On-Thames,
 Oxfordshire, RG9 1AZ, UK

For further information on our products and services please visit our stand.

Bentall Microturbine Developments Ltd**L80**

126 West Regent Street, Glasgow, Lanarkshire,
 G25RG, UK

For further information on our products and services please visit our stand.

BigChange**E39**

BigChange UK, 3150 Century Way, Leeds, UK,
 LS15 8ZB, UK

For further information on our products and services please visit our stand.

Boralex**C58**

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Boralex has been providing affordable renewable energy for over 30 years as a developer, builder, owner and operator of hydro, onshore wind, solar PV and battery storage. A leader in the Canadian market, Boralex also has facilities in the United States and is France's largest independent producer of onshore wind power, with 1.2GW of its 3GW in operational assets there. With Infinergy's integration now complete, Boralex is ready to boost deployment of development capital and operation capabilities in the UK.

BOSCH**P40**

Bosch UK Ltd, Broadwater Park, Denham,
 Uxbridge, UB9 5HJ, UK
 W: www.bosch-sofc.com

The Bosch Group is a leading global supplier of technology and services. Roughly 401,300 associates are employed worldwide (as of December 31, 2021). The company generated sales of 78.8 billion euros in 2021. Its operations are divided into four business sectors: Mobility Solutions, Industrial Technology, Consumer Goods, and Energy and Building Technology. As a leading IoT provider, Bosch offers innovative solutions for smart homes, Industry 4.0, and connected mobility.

Bosch Rexroth Ltd**P10**

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As one of the world's leading suppliers of drive and control technologies, Bosch Rexroth ensures efficient, powerful and safe movement in machines and systems of any size. The company bundles global application experience in the market segments of Mobile Applications, Machinery Applications & Engineering, and Factory Automation. With its intelligent components, customised system solutions and services, Rexroth is creating the necessary environment for fully connected applications. Rexroth offers its customers hydraulics, electric drive and control, gear, linear motion and assembly technology.

BP International Ltd.**K60**

Chertsey Road, Sunbury on Thames,
 Middlesex, TW16 7BP, UK
 W: www.bp.com/en_gb/united-kingdom/home.html

We are transforming from an international oil company to an integrated energy company, diversifying into different forms of energy, such as renewables, biofuels and hydrogen. Hydrocarbons will be a smaller part of our business over time, but we will continue to invest in oil and gas that is needed today, while driving down operational emissions. bp has 100 years of history in the UK and plans to invest billions here this decade to drive a home-grown energy transition.

BPP Renewables Ltd**Q22**

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 London, London, EC2V 5DE, UK
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BPP Renewables and its associate company, BPP-Tech, is a leading renewable energy company providing services on all engineering-related aspects of the maritime & renewables industries. Our trusted engineers work across the energy, insurance, utilities and transport sectors with our extensive expertise being employed in the offshore wind, subsea cabling, & green hydrogen industry. The innovative-based culture gives our clients the information and solutions necessary to offer the highest-quality engineering. BPP-renewables can support you, come and visit us at stand Q22.

Bruce Stevenson Insurance Brokers Limited**F25**

76 Coburg St, Leith, EH6 6HJ, UK
 T: + 44 (0) 131 553 2293
 E: stuart.macleod@brucestevenson.co.uk
 W: www.brucestevenson.co.uk

You can achieve peace of mind working with us as your leading insurance advisor to the UK Renewable Energy Industry. We can provide insurance solutions across all primary technologies such as On-shore wind, Hydro, Solar, Battery, Gas Peaking and emerging technologies. Your project can benefit greatly from early engagement with us and insurers providing you with advice and guidance at every stage to ensure your investments are fully protected. We can also help with service providers to the industry and offer insurance solutions to provide the same peace of mind.

**// A howden company****BSG Ecology****C48**

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BSG Ecology is an award-winning independent ecological consultancy. We provide a complete ecology service from baseline survey for habitats and protected species to impact assessment, biodiversity management planning, project design and expert witness advice. BSG Ecology has a wealth of project experience: a portfolio of well over 7,000 projects including over 260 renewable energy projects in the last 5 years.



BSH AETHERCT F20

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We are a UK based manufacturer of tube trailers built with Hydrogen transport in mind. We also manufacture ultra high pressure vessels for fixed static storage aimed at filling stations.

Built Environment Smarter Transformation L78

3 Watt Place, Blantyre, Glasgow, G720AH, UK

For further information on our products and services please visit our stand.

Bumblebee EV L81

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For further information on our products and services please visit our stand.

Business in Wind Projects BV D58

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In a circular economy, cooperation is more important than ever! That is why we've a fundamentally different vision on the market of used wind turbines. Normally the life cycle of a wind turbine starts with the expertise, guarantees and services of a manufacturer. That is how - in our opinion - the second life of a wind turbine also should begin. When you invest in a used turbine, there must be someone who feels responsible for the technical side of your business case. Someone who doesn't think in terms of making quick deals, but in sustainable cooperation. Business in Wind. Sharing commitment!

CalPac Resources Ltd L83

Hobart House, 80 Hanover Street, Edinburgh, EH21EL, UK

For further information on our products and services please visit our stand.

CAVICEL N40

VIA CADUTI DEL LAVORO 18/A, PIOLTELLO, MI, 20096, Italy

For further information on our products and services please visit our stand.

CED ITALY TRANSFORMERS N40

VIALE DEGLI ARTIGIANI 6, DESIO, Monza e Brianza, 20832, Italy

For further information on our products and services please visit our stand.

Centrica Energy Trading E38

Skelagervej 1, DK-9000, Aalborg, Denmark, CVR 20293195, Denmark

For further information on our products and services please visit our stand.

CENTRUS L40

SENATOR HOUSE, 85 QUEEN VICTORIA STREET, LONDON, EC4 V4AB, UK

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Clarke Energy Limited E28

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Clarke Energy is an award winning multinational power project business, with a focus on resiliency, efficiency and sustainability. We specialise in distributed energy, hybrid power and engineering, procurement and construction (EPC). We mitigate the risk from our customer's projects having a strong balance sheet of >£700m deployed assets and >£3b of installed power projects. Clarke Energy is the authorised distributor for INNIO's Hydrogen Ready Jenbacher gas engines in 28 countries, offering services that include, feasibility, project management and aftersales support.

Clyde Training Solutions J28

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As the first and only training centre in the central belt of Scotland to offer an extensive suite of offshore, maritime and renewables training, Clyde Training Solutions recognises what is required to offer something unique. From day one we have sought to ensure that the training needs of delegates are not simply served through certification, but rather that they leave us confident, informed and equipped to deal with any emergency scenarios they may find themselves in.

Coast Renewable Services H05

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Coast Renewable Services has been growing significantly since its inception in 2013. The Coast team is led by Mark Robson, a professional with decades of experience within the industry. We offer our full round services to support wind farms, over the years we have successfully delivered projects throughout the UK & Europe. We invest heavily in our team which is the heart of our business. We strive to make Coast a great place to work and have a dedicated team who love what they do.

Collett & Sons Ltd G41

Victoria Terminal, Albert Road, Halifax, HX2 0DF, UK
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W: www.collett.co.uk

Experts in abnormal load movements, Collett are your global professional partner for specialist logistics management, heavy haulage, heavy lift, marine and consulting services. Our expertise, skill and years of experience allows us to provide bespoke haulage logistics for the movement of abnormal indivisible loads throughout Europe. Our dedicated fleet of trucks, specialist trailers and self propelled modular transporters (SPMTs) operate across our strategically placed depots in Halifax, Goole, Grangemouth and Ireland, positioning us perfectly to provide the ideal haulage solution.

Conrad Energy Limited J41

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Leading energy services provider to generators leveraging our automated optimisation platform. We own and operate 650MW of battery storage and flexible generation assets. As an owner, operator, supplier and trader we have a unique understanding of the energy market, giving us an edge when it comes to optimising energy for our clients. We also provide bespoke power solutions to commercial and industrial customers. Our mission is to support the journey to net zero through facilitating flexible and resilient power plants as well as renewables.

**Cooper Software H10**

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Cooper Software is IFS Gold Channel Partners, one of the largest independent providers of IFS products, consulting services and support. We focus on making your business systems work harder for you. Thousands of the world's leading companies use IFS ERP software to effectively manage their customers, people and assets. Contained within a single platform and with the option of hosting in the cloud or on-premise, IFS offers unrivalled industry specific solutions.

Danish Board of District Heating P58

Staeher Johansens Vej 38, Frederiksberg,
Hovedstaden, 2000, Denmark

For further information on our products and services please visit our stand.

DAVI-PROMAU N40

VIA CIVINELLI 1150, CESENA, Forlì Cesena,
47522, Italy

For further information on our products and services please visit our stand.

Deutsche Windtechnik Ltd E30

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Deutsche Windtechnik offers a single-source full technical maintenance package for wind turbines in Europe, the USA and Taiwan. The company operates both onshore and offshore. More than 7,600 wind turbines are serviced worldwide by over 2,000 employees under permanent maintenance contracts (basic and full maintenance). The company's system engineering focuses on Vestas, Siemens, Nordex, Senvion, Fuhrlander, Gamesa and Enercon turbines.

Draeger Safety UK Ltd Q20

Ullswater Close, Blyth, Northumberland,
NE24 4RG, UK
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E: marketing.uk@draeger.com
W: www.draeger.com

Dräger has been providing complete safety solutions to the energy sector since oil first flowed from the North Sea, and can be your safety partner of choice now and for the future. This can include providing flexible hire or purchase options for protection and detection equipment, fire, rescue, safety and lifesaving products and also related services such as maintenance, repair, and training.

DTGen K02

Cadder House, 160 Clobber Road, Milngavie,
G62 7LW, UK

DTGen delivers a range of energy solutions to customers, including on-site generation, to help improve energy efficiency, reduce energy bills and improve power resilience. By using various technologies, such as gas to power generators and combined heat and power units, it provides customers with a full, behind-the-meter energy system. From start to finish, DTGen offers a complete turnkey package, fully financed systems and energy contracts as well as straight purchase options – supporting industrial and commercial customers on the journey to net zero.

**Dynam ORK31**

Wester Inshes Farmhouse, Inverness,
IV2 5BG, UK

For further information on our products and services please visit our stand.

Easy Crypto Hunter B29

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Easy Crypto Hunter has been established over 5 years and offers industry leading, lifetime support to all of our clients. Easy Crypto Hunter is a UK leading authority for premium GPU servers for use within the Cryptocurrency and Artificial Intelligence sectors. Our clients entered the space with no previous knowledge and utilise our support to maximise their investment.

EcoSpazio by Logiss N40

V.le Del Lavoro 16/E, Z.I., ROVERETO, Trento,
38068, Italy

For further information on our products and services please visit our stand.

Eden Campus L71

University of St Andrews, Walter Bower
House, St Andrews, KY160US, UK

For further information on our products and services please visit our stand.

EDF K20

90 Whitfield St, Bloomsbury, London,
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EDF is helping Britain achieve Net Zero by leading the transition to a cleaner, low emission electric future and is Britain's biggest generator of zero carbon electricity. EDF's PPA team work with industry partners, investors and independent generators to support the wider development of renewable generation, to help build the renewable capacity we need for the future. This includes structuring some of the largest and most complex Power Purchase Agreements (PPAs) in the UK and matching renewable energy generators to businesses of all sizes.

Effizienz G19

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For further information on our products and services please visit our stand.

EMD International A/S G52

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EMD was founded in 1986 and is a fully owned subsidiary of The EMD Foundation. Its purpose to disseminate and develop knowledge and technology, which aims at reducing resource usage and the impact on the environment. This will primarily be achieved by promoting development and use of software, calculation models, calculation methods etc. as well as consultancy herewith. Our software products are used by manufacturers, utilities, developers, consultants and public institutions in more than 100 countries and recognized and accepted as independent and industry-standard assessment and analysis tool.

EMEC ORK50,Q10

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Celebrating its 20th anniversary in 2023, EMEC is the world's leading centre for demonstrating wave and tidal energy converters in the sea and is pioneering the development of green hydrogen and a clean energy economy. As a plug-and-play facility EMEC helps reduce the time, cost and risk of testing innovative sustainable technologies. EMEC is the world's only accredited ocean energy test laboratory (ISO/IEC 17025) and inspection body (ISO/IEC 17020): the centre provides pre-consented grid-connected test sites in harsh wave and tidal regimes.

Emergya Wind Technologies (EWT) DirectWind UK Ltd G45

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EWT is the leading medium scale wind turbine manufacturer in its class, providing reliable solutions in distributed generation. For industrial users with medium to high electricity demand, those looking to decarbonise and take control of their energy costs, EWT turbines are an excellent fit. With a wide range of tip heights and rotor diameters, important to maximise production, but suit a variety of conditions. EWT offers high-quality Direct Drive wind turbines spanning 225kW to 1MW. Power your business with EWT.

ENERCON Wind Energy UK Ltd J10

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As a pioneer of wind energy technology and a partner of the energy transition, ENERCON specialises in the turbine and technology development, production, sales and servicing of onshore wind energy converters. Pursuing its mission of 'Energy for the world', ENERCON has driven sustainable energy generation from onshore wind since 1984. Thanks to its innovative wind energy converter technology, high quality standards and a total installed power of 56.74 GW (31,325 WECs in total as at 12/2021), it is one of the world's leading manufacturers. Learn more at enercon.de/en.

Energy Industries Council D48

Camelford House, 89 Albert Embankment,
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For further information on our products and services please visit our stand.

Energy Institute A55

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The Energy Institute (EI) is the chartered professional membership body for people who work across the world of energy. Our purpose is creating a better energy future for our members & society by accelerating a just global energy transition to net zero. We do this by attracting, developing & equipping the diverse future energy workforce; informing energy decision-making through convening expertise & advice; & enabling industry & consumers to make energy lower carbon, safer & more efficient. Join us to be part of a global energy community of 20,000 individuals & 200 companies. energyinst.org.

Energy Skills Partnership A40A

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 E: info@esp-scotland.ac.uk
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ESP is the college sector agency in Scotland for energy, engineering, construction and STEM whilst leading on the Climate Emergency Skills Action Plan.

Energy Systems Catapult P71

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 W: www.es.catapult.org.uk

Helping UK businesses thrive in the future clean energy system. Energy Systems Catapult was set up to accelerate the transformation of the UK's energy system and ensure UK businesses and consumers capture the opportunities of clean growth on the way to Net Zero. The Catapult is an independent, not-for-profit centre of excellence that bridges the gap between industry, government, academia and research. We take a whole-systems view of the energy sector, helping us to identify and address innovation priorities and market barriers, in order to decarbonise the energy system at the lowest cost.

Energy Voice A51

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 E: stuart.mcgill@energyvoice.com
 W: www.energyvoice.com

We investigate and report on what matters in oil & gas, renewables and the energy transition, globally. We help energy leaders understand the geopolitical and economic factors underpinning current events, and give them a view on what's coming next. Each year 3.4m professionals use Energy Voice as a trusted source of breaking news and insight. And because energy is our language, we can match our clients' expertise with exposure through a unique integrated marketing service: consultation on reaching the right people, a suite of content services (advertising, editorial, video, podcasts and more).

Enspec Power LTD H39

6 Waterside Court, St. Helens Technology Campus, St. Helens Merseyside, Merseyside, WA9 1UA, UK
 T: +441744610940
 E: info@enspecpower.com
 W: www.enspecpower.com

Enspec is an electrical engineering firm that specialises in power quality, grid code compliance and grid connection. We've been in operation for over 24 years, and have helped 1000s of renewable plants globally meet local grid code requirements through our various products and services. We offer Power Quality Surveys and a various Power System Studies (software including PSCAD, ETAP, IPSA, DiGSiLENT PowerFactory, and PSS/E). We also can design, manufacture and commission mitigating solutions including Passive/Hybrid/Active Filters, Reactive Compensation, and Point-on-Wave Switching.

Ervoa Energy K38

Ground Floor, 1 Georges Quay Plaza, Dublin, Ireland

For further information on our products and services please visit our stand.

ETP L75, L73, L81

University of Strathclyde, McCance Building, Glasgow, Scotland, G11XQ, UK
 E: contact@etp-scotland.ac.uk
 W: www.etp-scotland.ac.uk

ETP is the Scottish academic research alliance of 14 independent Scottish Higher Education Institutions providing world-class capability and resources in energy RD&D. ETP's vision is to build on the existing areas of excellence and collaborative working to ensure that Scotland remains a globally competitive driving force in energy research & innovation.

ETZ Ltd M48

Blenheim Gate, Blenheim Pl, Aberdeen, UK, AB25 2DZ, UK
 E: information@etzltd.com
 W: www.etzltd.com

The Energy Transition Zone (ETZ) is a 250 ha site close to the £400 million Aberdeen South Harbour. ETZ Ltd is a private sector-led, not-for-profit company aiming to reposition the North East of Scotland as a globally recognised energy cluster delivering net zero by enabling 40 ha of premium development opportunities using revitalised commercial properties alongside catalytic greenfield development sites to provide businesses with opportunities to invest in the largest dedicated energy transition complex in Scotland.

**Everoze Partners Ltd. R31**

22-24 Queen Square, Bristol, UK, BS1 4ND, UK
 T: + 44 (0) 7809 417139
 E: contact@everoze.com
 W: www.everoze.com

Everoze is an employee-owned consultancy, specialising in renewables, storage and wider energy flexibility. Our unique strength is bridging the gap between the technical and the commercial. We exist to help our clients accelerate the transition to a decarbonised energy system. We're a team of 80 consultants who are flexible, experienced and interdisciplinary. We have offices in the UK, France, and Spain and we're active in energy markets across the world. We are a trusted advisor and work closely with our clients to make projects, companies and technologies futureproof and financeable.

FES Group H60

FES Support Services, Unit 2, Forth House, 200 Glasgow Road, Stirling, Stirling, FK7 8HW, UK
 T: + 44 (0) 1786 819600
 E: hq@fes-group.co.uk
 W: www.fes-group.co.uk

For further information on our products and services please visit our stand.

Flanders Investment & Trade UK H50

Flanders House, 1A Cavendish Square, London, W1G 0LD, UK
 T: + 44 (0) 131 240 1200
 E: edinburgh@fitagency.com
 W: www.welcome.flandersinvestmentandtrade.com/en

A group pavilion with Flemish companies who are active in the cleantech/ renewable energy industry. * Global Water Engineering is a solution provider to the global marketplace for industrial wastewater treatment, water reuse and green energy from Bruges. ** Terrendis is a leader in the manufacture of polyethylene and polypropylene pipes and channels. *** NLO is one of the largest Intellectual Property consultancies in Europe with a wide range of services, from patent applications and trademark registrations to advice on IP strategy and IP related contracts.

Flexergy Ltd L89

15 Calton Road, Edinburgh, EH8 8DL, UK
 E: info@flexergy.net
 W: www.flexergy.net

Flexergy is developing an integrated suite of products for the compression, storage and distribution of high-pressure hydrogen gas. We are building the partnerships to become a global manufacturer and licensor of groundbreaking solutions for green hydrogen project developers. Our design philosophy emphasises simplicity, optimising for energy efficiency and reliability, so enabling our customers to minimise project risk and maximise their returns. The results will change the game. Visit our stand to find out more.

Forsyth of Denny**J19**

Easterton, Stirling Road, Denny, FK6 6RF, UK

Mobile Cranes and Contract lift capabilities up to and including heavy Cranes • Lorry loader and abnormal transport capabilities for delivery of all major components • With 3 Strategic locations with covered and abnormal load storage options • GWO trained and experienced Wind turbine technicians crews fully equipped with tool containers and all required equipment. • Major Component exchange • Lifting solutions and lift plans with in house cranes • Transport, offload and storage of Major components • GWO trained and experienced maintenance technicians • All resources in house.

Frazer-Nash Consultancy**M30**

Frazer Nash Consultancy, Hill Park Court, Leatherhead, Surrey, KT227NL, UK

For further information on our products and services please visit our stand.

Fuel Cell Systems Ltd**N30**

3 Station Yard, Hungerford, Berkshire, RG17 0DY, UK
T: + 44 (0) 1488 507050
E: enquiries@fuelcellsystems.co.uk
W: www.fuelcellsystems.co.uk

At Fuel Cell Systems we design and integrate full hydrogen systems, from hydrogen production, chilling and storage through to innovative refuelling systems for customers including vehicle manufacturers, the Met Police, the ZeroAvia passenger plane project, HydroFLEX (the first hydrogen powered passenger train in the UK) the Milford Haven Energy Kingdom and Teesside Airport. We have delivered hydrogen products for all types of transport, including planes, trains, cars, vans, fork lift trucks, boats and buses. We also design, source and integrate bespoke fuel cell solutions for customers.

Full Circle Wind Services Ltd**H40**

Thistle Court, 1-2 Thistle Street, Edinburgh, Midlothian, EH21DD, UK

For further information on our products and services please visit our stand.

Galooli**P48**

Sonol Tower, 52 Begin Road St., P.O box: 6713701, Tel Aviv, Israel, Israel
E: sales@galooli.com
W: www.galooli.com

Galooli has been leading the smart revolution of energy efficiency for over a decade, with a business presence spanning the globe. We provide an agnostic, all-encompassing remote monitoring and management platform to track, analyze and optimize your remote sites' and energy assets' performance. We offer an array of tools to help maximize the efficiency of your sites' power supplies and ensure that they run efficiently and uninterrupted, resulting in cost savings and a reduced carbon footprint.

GBE S.p.A.**G40**

Via Teonghio 44, Orgiano, VI, 36040, Italy
T: +390444774334
E: info@gbeonline.com
W: www.gbeonline.com

GBE is an Italian company specialized in the production of cast resin and VPI transformers up to 30MVA in all voltage classes up to 52kV (BIL 250KV), and oil immersed transformers up to 50MVA, 145kV (650kV BIL), air insulated, resin and oil reactors up to 10MVA. GBE UK Limited based in Leeds, is the UK Commercial Office and Workshops for GBE SpA Italy. GBE UK Limited always offers a personal service and advise the best solution possible to meet our customer needs. Which includes the supply and fitting of MV and LV Switchgear to offer the full package substation solution.

Geo Structural Ltd**H02**

Unit 01 Drumbreck Farm, Eastfield Rd, Caldercruix, ML6 7RP, UK
T: + 44 (0) 7780 693730
E: scott.smith@geo-structural.co.uk
W: www.geo-structural.co.uk/renewables

Geo-Structural Ltd was established to provide solutions in the inspection and repair of both onshore and offshore wind turbine generators. (Blades, foundations, tower displacement).

GES Group - Grants Electrical Svcs**D51**

18A Pennybridge Industrial Estate, Ballymena, County Antrim, BT42 3HB, UK
T: + 44 (0) 2825 656406
E: info@ges-group.com
W: www.ges-group.com

Established over 40+ years Grants Electrical Services has grown and developed into GES Group, a leading Electrical and Mechanical Engineering business, serving customers throughout Ireland, the UK and beyond. Currently employing over 90 staff, including many professionally trained and accredited Engineers, we respond quickly to Industry's ever-changing demands and needs, while offering geographic coverage to many of our. The group has strong and long standing trading history extending in growth across a significant number of industry sectors, in their drive to develop the renewable energy goal.

**Gilbert Gilkes & Gordon Ltd****HIE58**

Canal Head North, Kendal, Cumbria, LA9 7BZ, UK
T: + 44 (0) 1539 790045
E: j.chaplin@gilkes.com
W: www.gilkes.com

Gilkes Hydro manufacture Pelton, Francis and Turgo turbines from 50kW to 20MW. We offer customised, engineered solutions for hydroelectric developments, including design, manufacture, installation, commissioning and testing. We also offer service & maintenance on existing schemes as well as full plant modernisation.

GILKES

Hydro

Glenevin Ltd**P38**

Unit 6A, Dryden Road, Bilston Glen, Industrial Estate, Edinburgh, EH20 9LZ, UK

For further information on our products and services please visit our stand.

Global Water Engineering**H50**

Koningin Astridlaan 29, 6th floor, Brugge, West-Vlaanderen, 8200, Belgium

For further information on our products and services please visit our stand.

Global Wind Technology Ltd**L14**

unit 22 40 Edison St Hillington, Glasgow, G524JW, UK

For further information on our products and services please visit our stand.

Good Energy Ltd**D41**

Monkton Park Offices, Monkton Park, Chippenham, Wiltshire, SN15 1GH, UK
E: business-sales@goodenergy.co.uk
W: www.goodenergy.co.uk/business

Good Energy is a supplier of 100% renewable power and an innovator in energy services. Since it was founded over 20 years ago, we have been at the forefront of the charge towards a cleaner, distributed energy system. Our mission is to support UK businesses to generate, store and share clean power. Boasting a 100% renewable energy mix, provided by over 1,700 independent generators of wind, biogeneration, solar and hydroelectric power. Our support for renewables has been recognised through the Which? Eco Providers and Uswitch Green Tariff Gold Standard accreditations.

Green Cat Contracting Ltd J69

Green Cat Contracting, Starlaw Business Park, Livingston, West Lothian, EH54 8SF, UK
T: + 44 (0) 1506 416614
E: info@greencatcontracting.co.uk
W: www.greencatcontracting.co.uk

Green Cat Contracting Ltd (GCC) was formed in January 2013 with the aim of providing contracting services to a number of small to medium sized renewable energy and other construction projects. The business was initially intended to cover small scale wind energy (250kW to 10MW) and small-scale hydro schemes (100kW to 1MW). As the market has matured and the scale of projects has increased so has the target market, with projects up to 40MW now being pursued.

Green Cat Hydrogen P28

Stobo House, Roslin, UK, EH25 9RE, UK

For further information on our products and services please visit our stand.

Green Cat Renewables Ltd H68

Stobo House, Roslin, Midlothian, Roslin, Midlothian, EH25 9RE, UK
T: + 44 (0) 1899 309100
E: info@greencatrenewables.co.uk
W: www.greencatrenewables.co.uk

The company was established with an aim of driving down the costs associated with the development of renewables projects, identifying an opportunity to improve efficiency and reduce development costs by offering a complete in-house consultancy, and project management service to deliver concepts through the whole project life-cycle from initial conception to operation making renewable energy development more accessible to a wider range of individuals, businesses and developers. Our experience profile includes 600MW+ of wind, 200MW+ of solar and 25MW+ of hydro projects.

Green Marine(UK) ORK22

Station House, North End Road, Stromness, Orkney Islands, KW16 3AG, UK

For further information on our products and services please visit our stand.

Greentech Solar Farms A20

Challenge House, Sherwood Drive, Milton Keynes, UK, MK3 6DP, UK
T: + 44 (0) 7903 023601
E: projects.uk@greentech.energy
W: www.greentech.energy/en

Greentech develops, designs, builds and operates solar farms with a depth of experienced staff and a hi-tech monitoring and response hub. If you're a landowner, talk to us about leasing part of your farm for a solar farm at competitive rates. If you are a solar farm owner or asset manager, talk to us about operations and maintenance. We understand nature and the countryside and can quickly develop practical solutions to everyday and extreme event maintenance tasks to keep plants operating at maximum capacity in a safe manner.

Ground Source Heat Pump Association F55

39 Dryburgh Road, London, SW15 1BN, UK

As a trade association the GSHPA brings together over 160 members and interested parties from across the heat pump installation industry to develop a strong, dynamic and sustainable environment for heating and cooling systems that are based on heat capture, heat storage and heat transfer, including heat sharing networks and demand side management.

HORIBA UK Limited Q21

Kyoto Close, Moulton Park Industrial Estate, Northampton, Northamptonshire, NN3 6FL, UK
T: + 44 (0) 1604 542500
E: enquiries.uk@horiba.com
W: www.horiba.com/gbr

HORIBA's measurement solutions span from MATERIAL research instruments, fuel cell, and electrolyser test station evaluators, to hydrogen analysers, and fuel cell vehicle engineering design consultancy. As industry strives to take hydrogen technologies to large scale adoption, enhancements in durability, performance and cost are becoming paramount. Come visit us on stand Q21 to discuss any hydrogen challenges you might have.

Hydrasun Ltd N30

Gateway Business Park, Moss Road, Aberdeen, UK, AB12 3GQ, UK
E: info@hydrasun.com
W: www.hydrasun.com

Hydrasun is the recognised market leader in fluid transfer, power and control solutions to the global energy industries. A core product offering is complemented by services including asset integrity management, installation & integration, design, engineering and project management. Our model of fast & reliable supply of integrated product & service solutions aligned with our innovative engineering and technology development has enabled us to develop an extensive track record in the fast developing Hydrogen marketplace and to support the worldwide drive to decarbonise economies and industry.

Industrial Systems and Control L88

2/1 Culzean House, 36 Renfield Street, Glasgow, Lanarkshire, G2 1LU, UK

For further information on our products and services please visit our stand.

Innovate UK L60

Unit 218, Upper Street, London, N1 0QH, UK

For further information on our products and services please visit our stand.

Innovatium K69

Torus Building, Rankine Avenue, Scottish Enterprise Technology Park, EAST KILBRIDE, G75 0QF, UK

For further information on our products and services please visit our stand.

Invest NI B20

Bedford Square, Bedford Street, Belfast, BT2 7ES, UK
T: + 44 (0) 2890 698851
E: sam.knox@investni.com
W: www.investni.com

We have engineering companies that lead in development, manufacture and use of low carbon technologies, systems and services; exported to every continent.

Invest Northumberland J58

Advantage Northumberland Ltd, Wansbeck Business Centre, Ashington, Northumberland, NE63 8QZ, UK
T: + 44 (0) 1670 528400
E: invest@advancenorthumberland.co.uk
W: www.investnorthumberland.co.uk/

The North of Tyne area is home to energy innovation. Visit our stand to find out about investing in a region home to: Port of Blyth – A deep-sea port with expertise across the offshore energy/renewables, decommissioning, unitised and bulk sectors. Bates Clean Energy Terminal. Construction base for Sofia Offshore Wind Farm. Port of Tyne – An innovative deep-sea port handling cargoes from five continents. Tyne Clean Energy Park. O&M base for Dogger Bank Wind Farm. Offshore Renewable Energy Catapult - The UK's leading Technology Innovation and Research Centre for Offshore Renewable Energy.

ITALIAN TRADE AGENCY N40

Via Liszt 21, Rome, RM, 00144, Italy
T: + 44 (0) 20 7292 3910
E: londra@ice.it
W: www.ice.it/en

ITA - Italian Trade Agency is the Governmental agency that supports the business development of our companies abroad and promotes the attraction of foreign investment in Italy. With a motivated and modern organization and a widespread network of overseas offices, ITA provides information, assistance, consulting, promotion and training to Italian small and medium-sized businesses. Using the most modern multi-channel promotion and communication tools, it acts to assert the excellence of Made in Italy in the world. The participation is organised together with OICE and ANIMA associations.

Jeju, the Island of Green Energy / Invest Korea B38

13, Heolleung-ro, Seocho-gu, Seoul, Seocho-gu, Seoul, 06792, South Korea

Korea Trade-Investment Promotion Agency (KOTRA), South Korean government organization supporting foreign businesses interested in expanding business into Korea provides comprehensive business support services for foreign companies ranging from market trends info, business networking opportunities, tax & legal consultation to recruitment advertisement. All support by KOTRA is provided with free of charge. At All Energy KOTRA & Jeju provincial authority would like to invite you to business networking event on 11th May. Please contact JM Jee at jmjee@kotra.co.uk to reserve your seat!



Jerba Campervans L85, J60

Unit B, Halfland Barns, East Lothian,
EH39 5PW, UK
T: + 44 (0) 1620 890374
E: info@jerba.co.uk
W: www.jerbacampervans.co.uk

Established in 2006 Jerba Campervans is the only Scottish company to be accredited as a VW Motorhome Qualified converter. Manufacturing new VW campervans for customers across the UK we invest in ideas of the future – designing and building layouts for the new VW all EV ID Buzz campervan is a natural step. As a 100% employee owned company our fair work approach drives high staff commitment, engagement & productivity. Holding a long term relationship with the Scottish Manufacturing Advisory Service we were also the 2022 winners of the inaugural First Minister's Award for Manufacturing Leadership.

Kensa Utilities Ltd N70

Kensa House, Mount Wellington, Truro, UK,
TR4 8RJ, UK
E: info@kensautilities.com
W: www.kensautilities.com

Kensa envisions a networked GSHP solution that's comparable to a gas grid-based system. Homeowners pay a monthly charge to connect to the ambient temperature heat network, owning their GSHP and choosing their electricity supplier. As in Heat the Streets, Kensa funds the underground infrastructure, while homeowners own the heat pump. This pilot project aims to make clean, efficient heating affordable for more households and break down barriers to net zero.

Kishorn Port Ltd HIE34

Integrated Freight Facility, Annat, Corpach,
Corpach, PH33 7NN, UK
T: + 44 (0) 1397 773840
E: enquiries@kishornportltd.com
W: www.kishornport.co.uk

Kishorn Port Ltd is a port and dry dock facility, co-owned by Ferguson Transport & Shipping and Leiths (Scotland) Ltd. Our companies combine the port operations, marine services and transport logistic skills of FT&S with the quarrying, concrete and construction materials expertise of Leiths. Loch Kishorn is a sheltered loch with extensive deep water and has one of the largest dry docks in Europe. The site currently covers 45Ha of land and has plans to develop a further 10Ha, a deep water quay of up to 500m long at 20m water depth and a dry dock extension.

**Knights Brown Construction Ltd G38**

3 Charnwood Park, Waterton, Bridgend,
CF313PL, UK
T: + 44 (0) 1656 667601
E: Kelly.meredith-jones@knightsbrown.co.uk
W: www.knightsbrown.co.uk

With a tradition of successful civil engineering, in 2008 we established a divisional office in Bridgend, South Wales specialising in energy projects. We quickly built a reputation as 'contractor of choice' for the construction of energy projects across the UK. Our extensive, in-house project and site management expertise allows us to provide high quality, competitive packages for energy sector customers that effectively meets all construction requirements. Our customers take confidence in our portfolio of successful energy projects with over 100MW of installed capacity to date.

**Kyte Powertech G20**

DUBLIN ROAD, Cavan, H12 KV20, Ireland
T: +353 49 4331588
E: brian.foley@kytepowertech.com
W: www.kytepowertech.com

Kyte Powertech is one of the leading manufacturers of distribution transformers. First established in 1977 the operations based in Cavan Ireland, has evolved into a global supplier of high-quality distribution transformer solutions.

La Tene Maps F23

Station House, Shankill, Ireland
T: +353 12847914
E: enquiries@latenemaps.com
W: www.latenemaps.com

The companies main products are printed and digital maps and their corresponding databases on most renewable energy technologies: including: bioenergy, hydro, solarPV, wind wave and tidal. We also cover electricity & storage. Copies of some of our maps are available for free pickup from our stand.

LiftWerx F59

Savannahweg 69, 3542 AW Utrecht, Utrecht,
Utrecht, 3542 AW, Netherlands
T: +31 30 240 8067
E: info.europe@liftwerx.com
W: www.liftwerx.com

We use fully-electric crane-less technology to perform the following types of turn-key repairs: Main Bearing Exchanges, Gearbox Exchanges, Generator Exchanges, Blade Exchanges, Pitch Bearing Exchanges and Yaw Drive Exchanges. Our solution is safe, efficient, and reliable.

Locogen Ltd F54

4 West Silvermills Lane, Stockbridge,
Edinburgh, UK, EH3 5BD, UK
T: + 44 (0) 131 555 4745
E: info@locogen.com
W: www.locogen.com

The Locogen Group is an internationally recognised and award-winning pioneer in the renewable energy sector. Established in 2009, we develop, deliver and operate renewable energy solutions. We provide expert strategic, technical and commercial services to our clients and invest directly with our partners. We are focused on utility scale renewables, onsite generation and local energy systems. The services we deliver add value for our clients and partners to help them achieve their objectives.

Mabbett H18

Mabbett & Associates Limited, Mabbett House,
11 Sandyford Place, Glasgow, G37NB, UK
T: + 44 (0) 141 227 2300
E: info@mabbett.eu
W: www.mabbett.eu

Mabbett provide integrated planning, environment and engineering capability to support renewable and low carbon developments. Capabilities include: EIA, planning, contaminated land, flood risk and drainage, air and noise, landscape and visual, ecology and ornithology, grid connection support and M&E engineering design.

Mage Control Systems Ltd L86

The Newton Building, 45 Rankine Avenue,
Scottish Enterprise Technology Park, East
Kilbride, Lanarkshire, G75 0QF, UK
T: +44 (0) 141 255 1548
E: enquiries@magecontrol.com
W: www.magecontrol.com

Serving as one of Scotland's largest product design houses, Mage Control Systems is the one-stop-shop for bringing new innovations to fruition. The company's core capabilities in complex embedded control systems design, advanced algorithm development, power electronics, IoT & sensing solutions, and safety-critical software development to name a few are what sets Mage apart from the rest. Having history and experience in the leadership team from the aerospace & defence sector, Mage works to the reliable and robust practices utilised in these safety-critical sectors.

Mainhunter Aerospace Ltd L87

37 Southgate Street, Winchester, SO239EH, UK

For further information on our products and services please visit our stand.

Marsh Commercial K07

24 Whitefriars Street, Perth, UK, PH1 1PP, UK
 T: + 44 (0) 1905 892156
 E: Carl.Gurney@marshcommercial.co.uk
 W: www.marshcommercial.co.uk/for-business/renewable-energy-insurance

We're a specialist renewable energy insurance broker. We understand this complex industry and the various associated risks: environmental, contractual, supply chain, delivery, construction and operational, so we're able to offer expert advice and arrange the right renewable energy insurance to protect your business. From concept to operation, from solar power to anaerobic digestion, we're here to provide the right expertise when you need it most.

MCS Q59, Q59A

First Floor, Violet 3, Cheshire, WA4 4AB, UK
 T: + 44 (0) 333 103 8130
 E: hello@mcs-certified.com
 W: www.mcs-certified.com

MCS is a standards organisation. Working within industry, MCS certifies low-carbon energy technologies and installations used to produce electricity and heat from renewable sources. This includes heat pumps, solar, battery storage, biomass and wind. Our mission is to give people confidence in low-carbon energy technology by defining, maintaining and improving quality.

Mersen UK Teeside Limited H04

2 Boltby Way, Eaglescliffe, Stockton On Tees, TS16 0RH, UK
 T: + 44 (0) 1273 425114
 W: www.mersen.co.uk/products/power-transfer-technologies

Mersen offers complete technical solutions for all sliding contact applications requiring high performance products, a leading manufacturer of signal and power transfer systems, slip rings, carbon brushes, brush holders and complete solutions for the wind industry. Our patented Mersen Dust Collector System is a smart concept designed to prevent any short circuits caused by low insulation between rings and ground for hydro generators. With over 500 systems already installed in more than 30 countries, Mersen is the worldwide leader for this solution.

Metacon P20

Tomtebogatan 2, Örebro, SE-703 43, Sweden

Metacon is a manufacturer, system integrator and supplier of hydrogen technology. With a wide range of equipment including electrolysers, reformers, hydrogen refuelling stations and CHP units Metacon is able to deliver turnkey hydrogen systems at all scales.

METEODYN J30

33 Boulevard Salvador Allende, 44800 Saint-Herblain, Saint-Herblain, 44800, France
 T: +33 (0) 240 710 505
 E: info@meteodyn.com
 W: www.meteodyn.com

Meteodyn is an international Wind Engineering, Climatology and Meteorology expert, part of the CLS Group. We provide Meteodyn Universe, a software suite for developers that analyzes and completes wind data, estimates the wind resource, computes the EAP and performs siting and optimization studies. Meteodyn also provides Meteodyn APM, a software suite for operators that manages the past, present and future performances of renewable assets. We also offer different services: Offshore WRA through SARWind technology, Forecast, Meso-micro-scale coupling, Atlas, Climate change risk management, etc.

Narada Europe B30

3 Bishops Square, Titan Court, AL10 9NA, UK

For further information on our products and services please visit our stand.

**National Manufacturing Institute Scotland N71**

The University of Strathclyde, 85 Inchinnan Drive, Renfrew, Renfrewshire, PA4 9LJ, UK

For further information on our products and services please visit our stand.

Natural Power D30

The Green House, Castle Douglas, Kirkcudbrightshire, DG7 3XS, UK
 T: + 44 (0) 1786 542300
 E: sayhello@naturalpower.com
 W: www.naturalpower.com

Natural Power is an independent consultancy and service provider that supports a global client base in the delivery of onshore wind, solar, renewable heat, energy storage and offshore projects, from initial feasibility, through construction to operations and throughout all stages of due diligence.

Net Zero Technology Centre K69

Net Zero Technology Centre, 20 Queens Road, Aberdeen, AB15 4ZT, UK
 T: + 44 (0) 1224 063200
 E: info@netzerotc.com
 W: www.netzerotc.com

Our purpose is to develop and deploy technology for an affordable net zero energy industry, accelerating the energy transition by reducing emissions from existing facilities, unlocking the full potential of an integrated energy system, and propelling the energy industry towards a digital, automated, decarbonised future. We have co-invested over £220 million with industry, screened over 1650 exciting new technologies, completed or progressed 175+ field trials, commercialised over 33 technologies, supported 33 tech start-ups and helped generate £10-£15 billion GVA potential for the UK economy.

NLO H50

Technologiepark Zwijnaarde 122, Gent, Oost-Vlaanderen, 9052, Belgium

For further information on our products and services please visit our stand.

Norco Group Ltd Q01

Unit 5-6, Airways Industrial Estate, Aberdeen, Aberdeenshire, AB21 0DT, UK
 T: + 44 (0) 1224 729221
 E: nsutherland@norcoenergy.com
 W: www.norcoenergy.com

Norco Group Ltd is an independent specialist in stored electrical energy systems, with unrivalled experience and expertise in the delivery of innovative solutions to support the demand for battery backed systems, UPS and charger systems across a wide range of applications. Representatives from our partner Riello UPS will on the stand to answer your questions of critical, backup and emergency power supplies. We are service partners to organisations involved in the production, generation, distribution and ultimately the end users requiring solutions to energy storage and emergency backup needs

Nordex Group D28

Suite 4, Egerton House The Towers Business Park, Wilmslow Road, Didsbury, M20 2DX, UK
 E: SalesUK@nordex-online.com
 W: www.nordex-online.com/en

The development, manufacture, project management and servicing of wind turbines in the onshore segment has been the core competence and passion of the Nordex Group and its more than 9,000 employees worldwide for more than 35 years. As one of the world's largest wind turbine manufacturers, the Nordex Group offers high-yield, cost-efficient wind turbines that enable long-term and economical power generation from wind energy in all geographical and climatic conditions. The focus is on turbines in the 3 to 6MW+ class.

Northern Valve & Fitting Company Limited Q40, C38

Unit D13 Rivington Court, Moss Industrial Estate, Aberdeen, WN7 3NF, UK
 T: + 44 (0) 1942 601209
 E: sales@nvfcl.com
 W: www.nvfcl.com

FITOK are generally recognised as the leading (price competitive & service orientated) alternative to all established manufacturers of Fluid system Components. FITOK (founded in 1998) manufacture and distribute its range of products in 6 continents. With a product portfolio covering Instrumentation (6,000psi, TWIN FERRULE), Medium & High Pressure (20K & 60K, CONE & THREAD), Ultra High Purity (VCR, VCO), Rigid Tubing & Sample Systems they have established themselves as a global brand associated with quality & value! FITOK also have a full range of EC-79 & ECE-R110 certified products.

Northwards Ltd**ORK57**

Anderson Base, Gremista Industrial Estate,
Shetland, ZE1 OPX, UK
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E: info@northwardsltd.co.uk
W: www.northwardsltd.co.uk

From Northwards' bases in Shetland, Orkney, Aberdeen, Inverness, Scrabster, and Central Scotland, work with the energy sector ranges from transporting materials to Shetland for the development of the UK's largest onshore wind farm to moving hydrogen in Orkney. Beyond its Scottish depots, the company has access to the vessels and terminals of parent company, SeaCargo AS, so transportation across the north of Europe and Scotland is simple and straightforward, while a partnership with UPN facilitates pallet distribution services across the UK, Ireland and Europe.

Novuna Business Finance**F50**

Novuna House, Thorpe Road, Staines-upon-Thames, Surrey, UK, TW18 3HP, UK

Novuna Business Finance provides business asset and sustainable project finance to SMEs and large corporates across the UK. With a lending portfolio of more than £1.6bn, the business is active across multiple sectors and was recognised for Environmental, Social and Governance standards by Asset Finance Connect and received a Company Award for Sustainability at the 2022 Lending Awards. Novuna Business Finance is a trading style of Mitsubishi HC Capital UK PLC, part of Mitsubishi HC Capital Inc., one of the world's largest and most diversified financial groups, with over £60bn of assets.

NSTA**F21**

3rd Floor, 1 Marischal Square, Broad Street,
Aberdeen, London, AB10 1LP, UK
W: www.nstauthority.co.uk

The NSTA regulates and influence the oil, gas and carbon storage industries. We help drive North Sea energy transition, realising the significant potential of the UK Continental Shelf as a critical energy and carbon abatement resource. We hold industry to account on halving upstream emissions by 2030.

OEUK**G51**

OEUK, 1st Floor, Paternoster House, 65 St Paul's Churchyard, London, UK, EC4M 8AB, UK
T: + 44 (0) 1224 577250
E: membership@oeuk.org.uk
W: www.oeuk.org.uk

We represent an integrating offshore energy industry which safely provides cleaner fuel, power and products to everyone in the UK. Working together with our members, we are a driving force supporting the UK to meet its net zero ambitions. Our innovative companies, people and communities add value to the UK economy. Main membership benefits include: 1. Vast set of networking opportunities via our events, forums and workgroups. 2. Discounts on our events of 35%, special rates on exhibition spaces. 3. Market Intel in our reports and guidelines. Contact us on: membership@oeuk.org.uk.

OMICRON electronics UK Ltd**H31**

Staples Close, Stafford, Staffordshire,
ST16 1WQ, UK
T: + 44 (0) 1785 848100
E: info.uk@omicronenergy.com
W: www.omicronenergy.com

OMICRON is an international company serving the electrical power industry with innovative testing and diagnostic solutions. Offering a wide array of services in the fields of commissioning, consulting and training.

OMICRON**Orbital Marine Power****ORK30**

Innovation Centre - Orkney, Hatston Pier Road, Kirkwall, Orkney, KW15 1ZL, UK
T: + 44 (0) 7985 542501
E: s.clark@orbitalmarine.com
W: www.orbitalmarine.com

Innovative Orkney-based engineering company Orbital Marine Power is helping turn the tide on climate change with their ground-breaking tidal energy technology that captures renewable energy from the power of the earth's naturally occurring tidal stream resources. Orbital's innovative approach substantially de-risks the extraction of low-carbon energy from the tides by offering low manufacturing and installation costs and the ability to carry out inexpensive, quick servicing on all major turbine components.

ORE Catapult**J70, J74**

Inovo Building, 121 George Street, Glasgow,
G1 1RD, UK

For further information on our products and services please visit our stand.

Orkney Islands Council - Marine Services**ORK20**

Orkney Islands Council, 14 Queen Street,
Kirkwall, Orkney, LW151JE, UK

For further information on our products and services please visit our stand.

Outram Research Ltd**F47**

Outram Research Ltd, Haining House, Taylors Lane, Bosham, UK, PO18 8QQ, UK

For further information on our products and services please visit our stand.

PARAT Halvorsen AS**M40**

Postboks 173, Flekkefjord, 4402, Norway
T: +47 99485500
E: sales@parat.no
W: www.parat.no/ieh

PARAT's modern IEH High Voltage Electrode Boilers are the world's leading Power to Heat solution. Now with these new features: High-Pressure Steam up to 85 barg, Guaranteed Zero-Load (patent pending), Combined Hot Water & Steam in one unit (patent pending). PARAT has a complete range of clean electrical boilers from 500kW Low Voltage Boilers up to 75MW High Voltage Electrode Boilers for both steam and hot water. Do you need to reduce emissions from your heat production?

Pd&ms group**Q41**

Ardent West, North Esplanade West,
Aberdeen, UK, AB11 5QH, UK
T: + 44 (0) 1224 282900
E: info@pdms-group.com
W: www.pdms-group.com

For further information on our products and services please visit our stand.

Peterson UK**H11**

Nautilus House, 35 Waterloo Quay, Aberdeen, UK, AB11 5BS, UK
T: + 44 (0) 1224 288100
E: energycommunications@onepeterson.com
W: www.energylogistics.onepeterson.com/en

Peterson is a world-leading, innovative and highly trusted international energy logistics and supply chain solutions company, driven by a passion to lead the way in transforming how the industry plans, manages and executes the movement of critical resources globally.

Petzl UK**G18**

Junction 38, Tebay, Cumbria, CA10 3SS, UK
T: + 44 (0) 1539 626250
E: info@petzl.co.uk
W: www.petzl.com

For over 40 yrs Petzl has designed & manufactured products for work at height. Petzl's mission is to create innovative tools and services that allow you to progress, position, and protect yourself in vertical environments.

**Powersystems UK Ltd****G10**

Unit 1, Badminton Road, Bristol, Bristol, BS37 5GG, UK
T: + 44 (0) 1454 318000
E: jules.daly@powersystemsuk.com
W: www.powersystemsuk.co.uk

As a high voltage specialist electrical engineering company with over 46 years of experience we have grown by reputation to become a trusted force in the design, installation and commissioning of electrical infrastructure across the UK. Since 2000, Powersystems have connected over 6.1 GW of renewable energy generation to the UK grid, along with decarbonisation technologies which includes; wind and solar projects, electrical vehicle infrastructure, rotating stabilisers, anaerobic digestion, STOR, hydro, CHP, Battery Energy Storage BESS and commercial industrial private wire networks.



Pure Renewables P52

14D iPark Industrial Estate, Innovation Drive,
HU5 1SG, UK
E: dak@eeheating.com
W: [europeanenergy.com/green-solutions/
green-heating/](http://europeanenergy.com/green-solutions/green-heating/)

European Energy Heating delivers standard and bespoke, large-scale electric heat pumps for commercial uses such as district heating networks, public buildings, schools, hospitals, and horticulture. European Energy already has a large portfolio in the wind and solar sectors and entered the green heating sector in recent years with the aim to offer green heating solutions throughout Europe. European Energy Heating UK is the first such heating division outside of Denmark.

PyroCore P50

PyroCore Ltd, Unit 203C, Bristol, BS118AP, UK
E: info@pyrocore.com
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PyroCore is a GreenTech company offering compact, industrial-scale waste management pyrolysis technology, producing energy and reusable by-products.

Quoceant Ltd. P31

Bonnington Bond, Suite 43, 2 Anderson Place,
Edinburgh, Edinburgh, City Of, EH6 5NP, UK
T: + 44 (0) 131 516 3786
E: info@quoceant.com
W: www.quoceant.com

Quoceant are engineering consultants specialising in marine renewables and technology innovation. We go beyond the typical consultancy service with our fresh, informed, and innovative approach to multi-stranded engineering projects. From concept through to detailed design, we support projects with services including engineering design and analysis, numerical modelling and simulation, third party review and innovation.

Realise Energy Services Ltd. G33

Realise Energy Services, Unit 7, Inveralmond
Way, Perth, PH1 3UQ, UK
T: + 44 (0) 800 042 0251
E: enquiries@realise-energy.co.uk
W: www.realise-energy.co.uk

Realise Energy Services is a locally based UK wind engineering company with a large portfolio of wind turbines that we currently support with remote monitoring, scheduled and unscheduled operation and maintenance services and other elements of asset management. Realise also supplies and installs wind turbines, including Vestas pre-owned turbines, for repowering or new installations.

**ReBlade Limited J76**

2 Stewart Street, Glasgow, Scotland,
G616BW, UK
T: + 44 (0) 7729 564222
E: info@reblade.co.uk
W: www.reblade.co.uk

We provide clients across the UK and Ireland with expert blade removal services. We know the wind industry inside out, and we've pioneered a pragmatic, industry-leading solution to sustainable decommissioning. Our blade handling and disposal processes enable the swift, safe, clean and circular removal of blades and nacelles from site. Whether you need a one-off blade removal, or whole site decommissioning, our tried and tested methodologies ensures all your windfarm derived GRP material is managed safely, efficiently, cost-effectively and in full compliance with legislation.

Red Rock Power Limited H21

40 Princes Street, Edinburgh, EH2 2BY, UK
T: + 44 (0) 131 557 7148
E: reception@RedRockPower.co.uk
W: www.redrockpower.co.uk

Red Rock Power is an Edinburgh-based owner, operator and developer of renewable energy projects in the UK and Europe including the Beatrice (25%) and Inch Cape (50%) offshore wind farm projects. We are passionate about delivering clean, affordable energy and supporting the net zero transition. While our strength lies in the wind sector and we are continuing to grow our UK wind portfolio, we are also pursuing acquisition and development opportunities to expand into other European markets and sustainable energy technologies. Visit www.redrockpower.co.uk to learn more.

Renewable Parts Ltd G30

Unit L7E, Westway Business Park, Porterfield
Road, Renfrew, Renfrewshire, PA4 8DJ, UK
T: + 44 (0) 141 886 1220
E: sales@renewable-parts.com
W: www.renewable-parts.com

Renewable Parts specialises in supply chain management for the wind energy industry, sourcing, storing, and delivering parts and consumables for turbine owners, operators, and maintenance providers across the UK and Europe. The company is a sustainability leader in the industry, actively working with partners including suppliers and academia, like the University of Strathclyde, to create a greener supply chain and introducing circular economy practices into the wind energy industry.

reNEWS A1

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E: sales@renews.biz
W: www.renews.biz

reNEWS provides news-focused business intelligence on the renewable energy sector with market-leading coverage of offshore and onshore wind. The reNEWS Premium newsletter is regarded as a leading source of information on the sector, providing the exclusive and unmissable stories that matter to the industry. Breaking news is available through our dynamic website www.reNEWS.BIZ and across a range of digital platforms including a customised daily newsletter service.

REPCo N40

VIA V. LANCETTI 43, MILANO, MI, 20158, Italy

For further information on our products and services please visit our stand.

RES L21

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T: + 44 (0) 141 404 5529
E: katie.sweeney@res-group.com
W: www.res-group.com/en

RES is the world's largest independent renewable company with over 40 years' experience of developing, building and operating utility-scale solar, storage and wind assets. The company has delivered over 23GW of renewable generation worldwide and supports an operational asset portfolio of 10GW. We're the ideal partner for renewable investors, asset owners, utility companies, commercial and industrial clients, project developers and communities seeking renewable energy solutions.

Rhopoint Components Ltd S30

Rhopoint House, Imberhorne Lane, East
Grinstead, UK, RH19 1QZ, UK
T: + 44 (0) 1342 330470
E: sales@rhopointcomponents.com
W: www.rhopointcomponents.com

Rhopoint Components is part of the Rhopoint Group. We specialise in the distribution of precision electronic components, sensors, connectors and enclosures. We are an authorised partner to over 25 industry-leading manufacturers. We offer a range of stocked lines and fully customised solutions to meet your requirements. Using their high level of technical and logistical knowledge, our friendly and professional team are on hand to advise on products and help you achieve the best possible solutions for your design. We look forward to discussing any requirements and projects you have.

RINA N40

Via Antonio Cecchi 6, GENOVA, GE, 16129, Italy

For further information on our products and services please visit our stand.

Ripple Energy E48

Blackbrook Gate, The Frames, 1 Phipp Street,
London, EC2A 4PS, UK
E: info@rippleenergy.com
W: www.rippleenergy.com

Enabling people and businesses to part-own a solar park or wind farm, alongside thousands of others to power their home or business and lower their electricity bills. We build it. You own it. Stabilise your bills for the long term, with your own source of power, protecting yourself from volatile price spikes.

RSK Group**F30**

RSK Glasgow, 65 Sussex Street, Glasgow, G41 1DX, UK
W: www.rskgroup.com

RSK is a global leader in the delivery of sustainable solutions. We provide end-to-end energy services and have over 30 years' renewables experience. Today, we continue to work on a variety of technologies, including onshore/offshore wind, marine and tidal power, solar, storage and green hydrogen with our 1400+ renewables professionals. Our global services include land assembly, site prospecting, site feasibility, design support, consent management, environmental impact assessment, construction support, operations support and due diligence on energy projects.

Scot Industrial Air**L07**

398 Townmill Road, Glasgow, G31 3AR, UK
T: + 44 (0) 141 556 7301
E: enquiries@scot-industrial-air.co.uk
W: www.scot-industrial-air.co.uk

Established in 1986, Scot Industrial Air (SIA) is Scotland's premier supplier of compressed air systems and generators. As the premier distribution partner for leading brands such as CompAir, Hydrovane, Reavell, Bambi, Abac, Atex, Boge and JCB Power Products you are in the safest of hands.

Scottish Hydrogen & Fuel Cell Association**Q24**

14B Johnston Terrace, Edinburgh, EH1 2PW, Edinburgh, EH1 2PW, UK
T: + 44 (0) 7766 062040
E: info@shfca.org.uk
W: www.shfca.org.uk

The breadth of experience and skills within our membership is critical for the development of our sector. Our wide SHFCA membership enables SHFCA to facilitate links between our members, and help you to identify relevant opportunities. Our SHFCA members include international corporates, SMEs, small companies, individual members, city and local authorities, academic institutions, and development agencies. The breadth of skills and expertise from our members will be essential if we are to achieve the scale and speed of energy system transformation needed to deliver the 2030 and Net Zero targets.

Scottish Renewables**A2**

Floor 3, 24 St Vincent Place, Glasgow, G1 2EU, UK
E: info@scottishrenewables.com
W: www.scottishrenewables.com

Scottish Renewables is the voice of Scotland's renewable energy industry. Our vision is for Scotland leading the world in renewable energy. We work to grow Scotland's renewable energy sector and sustain its position at the forefront of the global clean energy industry. Our members work across all renewable energy technologies, in Scotland, the UK, Europe and around the world. In representing them, we aim to lead and inform the debate on how the growth of renewable energy can help sustainably heat and power Scotland's homes and businesses.

ScottishPower UK LTD**H30**

ScottishPower Accounts Payable, 10th Floor, 320 St Vincent Street, Glasgow, G2 5AD, UK
W: www.scottishpower.com

ScottishPower is part of the Iberdrola Group, one of the world's largest integrated utility companies and a world leader in wind energy. ScottishPower is the first integrated energy company in the UK to generate 100% green electricity. Our focus is on wind energy, smart grids and driving the change to a cleaner, electric future and we're investing over £6m every working day to make this happen. We're committed to speeding up the transition to cleaner electric transport, improving air quality and over time, driving down bills - to deliver a better future, quicker for everyone.

SECUMS INTERLOCKS**F59**

13 rue du Canal, Neuilly Plaisance, France, 93360, France
T: + 33 1 43 08 97 20
E: info@secums.com
W: www.secums-interlocks.com

Nous concevons, fabriquons et assemblons dans nos ateliers des systèmes d'interverrouillage pour la sécurité des machines.

SEINGIM GLOBAL SERVICE**N40**

VIALE DUCA D'AOSTA 67/6, CEGGIA, Venezia, 30022, Italy

For further information on our products and services please visit our stand.

SEMCO GROUP**N40**

Via R. Amundsen 5, Milano, MI, 50148, Italy

For further information on our products and services please visit our stand.

Sequentec Ltd**P31**

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E: enquiries@sequentec.co.uk
W: www.sequentec.co.uk

Sequentec design and supply Control Systems, Communication Systems, Software and Electrical Systems. We have a strong focus on marine renewable devices particularly wave energy, but can supply systems for a wide variety of applications ranging from small scale model testing through to large offshore devices.

Shell Eco-Marathon**R49, R41**

The Silver Fin Building, 455 Union Street, Aberdeen, AB11 6DB, UK
W: www.makethefuture.shell/en-gb/shell-eco-marathon

Shell Eco-marathon is a global academic programme focused on energy optimisation and one of the world's leading student engineering competitions. Over the past 35 years, the programme has consistently brought to life Shell's mission of powering progress by providing more and cleaner energy solutions. The global academic programme brings together Science, Technology, Engineering and Maths (STEM) students from across the globe to design, build and operate some of the world's most energy-efficient vehicles.

Shell U.K Limited**K30**

1 William Mackie Crescent, Stonehaven, Kincardineshire, AB39 2PR, UK
W: www.shell.co.uk

Tackling climate change is an urgent challenge. That is why Shell has set a target to become a net-zero emissions energy business by 2050, in step with society. Becoming a net-zero emissions energy business means that we are reducing emissions from our operations, & from the fuels and other energy products we sell to our customers. It also means capturing & storing any remaining emissions using technology or balancing them with offsets. We are transforming our business, providing more low-carbon energy such as charging for electric vehicles and electricity generated by solar & wind power.

Shepherd & Wedderburn LLP**D20**

Exchange Crescent, 1 Conference Square, Edinburgh, EH3 8UL, UK
T: + 44 (0) 131 228 9900
E: info@shepwedd.com
W: www.shepwedd.com

Our number one ranked clean energy practice delivers unrivalled specialist, commercial, multi-disciplinary legal advice across the full spectrum of technologies within the energy sector. Our cutting-edge practice has over 30 years' experience working with clients on innovative and complex projects across the UK and overseas.

Shetland - Islands Of Opportunity**HIE70**

Shetland Islands Council, Port Administration Building, Sella Ness, Shetland Islands, ZE2 9QR, UK
E: futureenergyhmpo@shetland.gov.uk
W: www.orioncleanenergy.com

While Shetland is the northern most region in Scotland, it is far from being at the edge of everything. It sits right in the heart of Scotland's energy industry. Shetland has a wealth of local knowledge in Renewables, Engineering, Supply Chain Work, Oil & Gas, and Ports. We would like to show how these sectors and the organisations involved will be the vanguard of the energy transition. Our vision is to build a world-leading clean energy hub, attracting people of all ages to live, work, study and invest.

Siemens Gamesa Renewable Energy GmbH & Co. KG**H20**

Beim Strohhaus 17-31, HAMBURG, 20097, Germany

With more than 40 years of experience and almost 130 GW installed across the globe, Siemens Gamesa Renewable Energy is a global technological leader in the wind industry. Our end-to-end value chain expertise encompasses onshore and offshore wind turbine design, manufacturing, installation and maintenance, as well as hybrid system solutions. As your trusted technology partner, we strive to provide the best product for each project, while driving down the LCoE to help you reach your profitability goals.

SLR Consulting G11

86 Princess Street, Manchester, Manchester, UK, M1 6NG, UK
W: www.slrconsulting.com

SLR is a global leader in end-to-end sustainability solutions: providing clients with strategic advice and on the ground support, partnering with them in Making Sustainability Happen. SLR has been delivering energy transition projects for over 20 years, and our team understands the complexities in advising on and successfully completing integrated, cost effective clean energy and decarbonisation solutions across the value chain to meet Net-Zero commitments, achieve energy security and help ensure a Just Transition.

SmartestEnergy Ltd G60

The Columbus Building, 7 Westferry Circus, London, E14 4HD, UK
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E: ppa@smartestenergy.com
W: www.smartestenergy.com/en_gb

SmartestEnergy is a flexibility-backed energy company, driving a smarter transition to net-zero. We are a bankable, commercial partner with the backing of our parent company, the Marubeni Corporation. With 20+ years of experience, our PPA customers can sell with confidence via our online trading platform, SmartFlex, which enables them to track the market to maximise project revenue. As the UK's leading purchaser of independent generation, supplier of renewable electricity, and provider of demand response services, we are perfectly placed to help energy entrepreneurs achieve their energy goals.

Smith Brothers Contracting Ltd G58

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E: enquires@smithbrothersltd.co.uk
W: www.smithbrothersltd.co.uk

Smith Brothers (Contracting) Ltd is a large turnkey electrical ICP and BOP contractor, working on projects up to 132kV. Having recently expanded into the Irish market, Smith Brothers have also begun work as an EPC (Engineering Procurement and Construction), developing gas peaking and battery sites.

Society for Underwater Technology -SUT- Q30

HQS Wellington, Victoria Embankment, London, England, WC2R 2PN, UK
T: + 44 (0) 7494 522331
E: info@sut.org
W: www.sut.org

The Society for Underwater Technology (SUT) is a multidisciplinary learned society that brings together organisations and individuals with a common interest in underwater technology, ocean science and offshore engineering.

Solar Daddy Group Ltd Q39

Cotton Court, Church Street, Preston, PR1 3BY, UK

For further information on our products and services please visit our stand.

Solar Energy UK A41

22 Chapter House, Chapter Street, London, SW1P4NP, UK
E: general@solarenergyuk.org
W: www.solarenergyuk.org

Solar Energy Scotland operates in coordination with Solar Energy UK. Since 1978, Solar Energy UK has worked to promote the benefits of solar energy and to make its adoption easy and beneficial for domestic and commercial users. A not-for-profit association, we are funded entirely by our membership, which includes installers, manufacturers, distributors, developers, investors, and legal and environmental consultants.

SolarCleanso Q48

ZARO 2-4 rue Gustave Loosé, Grass, Luxembourg, 8346, Luxembourg
T: +352 28 80 69
E: info@solarcleanso.com
W: www.solarcleanso.com/en

SolarCleanso is a Luxembourg-based robotics company specializing in providing innovative autonomous and semi-autonomous solutions for cleaning solar panels. SolarCleanso is a cutting-edge technology for cleaning solar panels that enhances their performance and extends their lifespan. SolarCleanso has shifted its business model to focus on becoming a service and robotics company that employs high levels of automation and data analysis, including artificial intelligence, to further improve solar panel predictive maintenance.

SSE C20

Inveralmond House, 200 Dunkeld Rd, Perth, PH13AQ, UK
W: www.sse.com

At SSE we believe low-carbon investment is crucial: providing a vital economic boost, creating skilled, sustainable jobs to support a just transition, improving air quality and building resilience whilst driving progress towards climate change targets. SSE is a leading generator of renewable electricity and one of the largest electricity network companies in the UK. We develop, own and operate low carbon infrastructure to support the zero-carbon transition including onshore and offshore wind, hydro, electricity transmission and distribution, efficient gas-fired generation and business energy.

Stanley Black & Decker J38

270 Bath Road, Slough, SL1 4DX, UK
E: enquiries@facom.com
W: www.stanleyblackanddecker.com

Stanley Black & Decker is the worldwide leader in tools and storage. We work every day to create the tools that help you build and maintain the world. Pros, tradespeople and do-it-yourselfers alike rely on us every day for the toughest, strongest, most innovative hand tools, power tools, accessories and storage solutions on the market. We know you count on us to deliver the best, so we push ourselves every day to be the best. We intend to be not just a leader, but to embrace technological change to become a disruptive force (for good) among global diversified industrials.

Statkraft UK Ltd F48

19th Floor, 22 Bishopsgate, London, EC2N 4BQ, UK
W: www.statkraft.com

Statkraft is the UK's leading renewables trader. Since 2006, we've gone from strength to strength and are at the heart of the energy transition. As well as a thriving markets business, we've invested over £1.3bn in the UK's renewable energy infrastructure, across wind, solar, hydro, storage, grid stability, EV charging and green hydrogen. Across our UK businesses we employ nearly 450 staff in England, Scotland and Wales and play a key role in helping the global business reach its goal of 9 GW of developed wind and solar power by 2025.

STEAB N40

VIA G. MARCONI 1/3, RUFINA, Firenze, 50068, Italy

For further information on our products and services please visit our stand.

Studio Martini Ingegneria N40

VIA TOTI DAL MONTE 33, MOGLIANO VENETO, Treviso, 31021, Italy

For further information on our products and services please visit our stand.

Supergen Offshore Renewable Energy Hub M78

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E: supergenorehub@plymouth.ac.uk
W: www.supergen-ore.net

The UK is at the forefront of the development, adoption and export of Offshore Renewable Energy (ORE) technologies. If we are going to maintain that world-leading position we need to continue to spearhead research and innovation in ORE. Our focus is on providing leadership for academic research, which means having a comprehensive overview of what's going on, so we can shape and lead the future direction. Our Area Strategy is the foundation of our mission to deliver that Research Leadership.

Swanbarton Limited L98

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W: www.swanbarton.com

Based in the UK, our team of engineers and analysts offer skills in storage technologies, control systems, commercial analysis, energy industry regulation, innovation, product development, and project management. Swanbarton built its reputation as a pioneer in the energy storage sector. We have worked with many national and overseas clients since 2003 to develop the case for energy storage.

SWEP International AB E20

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Hjalmar Brantings Väg 5
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W: www.swep.net/

SWEP is a world-leading supplier of brazed plate heat exchangers and prefabricated energy transfer stations for HVAC and industrial applications.



A **DOVER** COMPANY

Team Scotland K10

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Visit the Team Scotland stand to meet colleagues from - Scottish Enterprise - Scottish Development International - Scottish Government - Highlands & Islands Enterprise - South of Scotland Enterprise - Crown Estate Scotland - Marine Scotland - Transport Scotland - Skills Development Scotland.

Terrendis H50

Korte Mate 10, Gent, Oost-Vlaanderen, 9042, Belgium
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W: www.terrendis.com

Terrendis is entirely dedicated to the manufacturing and marketing of a complete range of hyper flexible pre-insulated pipes and accessories, primarily used for the transport of heating water, sanitary hot water, cold potable water, cooling and waste water or other fluids in underground networks.

The Clarus Networks Group G05

Unit 2f Inchmuir Rd, Whitehill Industrial Estate, Bathgate, UK, EH48 2EP, UK
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E: connect@clarus-networks.com
W: www.clarus-networks.com

Mobile Private Networks, LEO, IoT & DAS Specialists. Formed in 2014, The Clarus Networks Group offers an extensive portfolio of specialist connectivity solutions, tailored to keep your workforce in touch and online 24/7. We harness the power of major satcoms and telecoms networks combined with state-of-the-art technology, to provide effective solutions and reliable communications coverage for each site and project, including in remote areas where terrestrial signals are poor or non-existent.

Thistle Wind Partners (TWP) E49

Thistle Wind Partners Limited, Capital Building, 12-13 St Andrew Square, Edinburgh, Scotland, EH22AF, UK

For further information on our products and services please visit our stand.

Thrive Renewables Plc D50

Deanery Road, Bristol, BS1 5AS, UK
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W: www.thrivere Renewables.co.uk

Thrive Renewables is a renewable energy investment company. We believe in a clean, smart energy system powered by the investment of many and currently own and operate 23 projects including solar, storage, onshore wind, hydro and geothermal. Our investment strategy is focussed on making renewables work commercially and socially using flexible funding models. In addition to acquiring projects, we plug funding gaps and provide collaborative capital through joint ventures or funding bridges with developers, businesses and communities.

TMC Transformers S.p.A. J49

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E: marketing@tmctransformers.com
W: www.tmctransformers.com

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West of Orkney Windfarm**HIE59**

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The West of Orkney Windfarm is being developed by Corio Generation, TotalEnergies and RIDG, a consortium with deep Scottish roots, a commitment to delivery and a clear vision for the project.

Wilson Power Solutions**G27**

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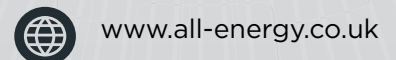
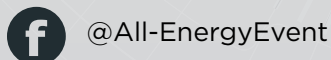
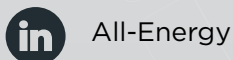
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