### Tuesday, 7 September 2021

<table>
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<tr>
<th>Time</th>
<th>Session</th>
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<tbody>
<tr>
<td>12:00 - 13:45</td>
<td>Opening Plenary</td>
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<tr>
<td>14:45 - 16:15</td>
<td>01 Smarter and More Efficient Field Development I</td>
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<tr>
<td>14:45 - 16:15</td>
<td>02 Reservoir Characterisation and Flow Modelling</td>
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<tr>
<td>14:45 - 16:15</td>
<td>CCUS &amp; Hydrogen: Can we Deliver at Scale?</td>
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<tr>
<td>14:45 – 15:45</td>
<td>Energy Islands: Stepping Stones to a Faster Energy Transition to Net Zero!</td>
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### Wednesday, 8 September 2021

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<tr>
<td>12:00 - 13:30</td>
<td>03 Future Operations</td>
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<td>12:00 - 13:30</td>
<td>04 Integrated North Sea</td>
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<tr>
<td>12:00 - 13:15</td>
<td>Data and Digitalisation: How a 21st Century Industry can Unlock Greater Value Creation; Lower Carbon Footprint and Lower Cost</td>
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<td>12:00 - 13:30</td>
<td>Road to Net Zero – Will our Actions get us There?</td>
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<tr>
<td>14:00 – 14:30</td>
<td>Getting in Control of Asset Performance Management &lt;br&gt; &lt;span style=&quot;font-style: italic;&quot;&gt;Sponsored Session By ABB&lt;/span&gt;</td>
</tr>
<tr>
<td>14:00 – 14:30</td>
<td>Managing the Offshore Hydrocarbon Legacy whilst Enabling a Vibrant Offshore Future - why Late-life &amp; Decommissioning Activity is Pivotal to Success &lt;br&gt; &lt;span style=&quot;font-style: italic;&quot;&gt;Sponsored Session by Decom North Sea&lt;/span&gt;</td>
</tr>
<tr>
<td>14:00 – 14:30</td>
<td>Technology Driving Transition: The Net Zero North Sea Vision &lt;br&gt; &lt;span style=&quot;font-style: italic;&quot;&gt;Sponsored Session by NZTC&lt;/span&gt;</td>
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<tr>
<td>14:45 - 16:15</td>
<td>05 Smarter and More Efficient Field Development II</td>
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<tr>
<td>14:45 - 16:15</td>
<td>06 Decommissioning</td>
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<td>14:45 - 16:15</td>
<td>Facilities of the Future – An Integrated Approach to Energy Efficiency, Decarbonisation and Automation</td>
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<tr>
<td>14:45 - 16:15</td>
<td>Scaling up Digital to Enable Low-Carbon O&amp;G Industry</td>
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### Thursday, 9 September 2021

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<tr>
<th>Time</th>
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<tbody>
<tr>
<td>12:00 - 13:30</td>
<td>07 Mature Fields</td>
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<td>12:00 - 13:30</td>
<td>08 Floating Wind</td>
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<tr>
<td>12:00 - 13:15</td>
<td>Brave, Bold, and Better: Breaking the Silo Paralysis</td>
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<tr>
<td>12:00 - 13:00</td>
<td>What Does the Future of Oil and Gas look like in the UKCS, and How do Companies need to Adapt to Realise the Opportunity?</td>
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<tr>
<td>14:00 - 14:30</td>
<td>Offshore Wind - Enabling Safe, Reliable and Efficient Operations for a Sustainable Energy Future</td>
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<td><em>Sponsored Session By ABB</em></td>
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<td>14:45 - 16:15</td>
<td>09 Subsea</td>
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<td>14:45 - 16:15</td>
<td>10 Hydrogen</td>
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<td>14:45 - 16:15</td>
<td>Championing Diversity &amp; Inclusion: How Embracing our Differences will be Key to Reaching Net-Zero</td>
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<tr>
<td>14:45 - 16:15</td>
<td>Risk Management and Rapid Decision Making in a Burgeoning Crisis</td>
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### Friday, 10 September 2021

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<tr>
<th>Time</th>
<th>Session</th>
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<tbody>
<tr>
<td>12:00 - 13:30</td>
<td>11 Decarbonisation</td>
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<td>12:00 - 13:30</td>
<td>12 Digital Drilling</td>
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<tr>
<td>12:00 - 13:30</td>
<td>13 Health and Safety</td>
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<tr>
<td>12:00 - 13:30</td>
<td>14 Remote Operations and Unmanned Installations</td>
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<tr>
<td>13:45 - 14:15</td>
<td>Decarbonisation: Shrinking the Carbon Bubble</td>
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<td><em>Sponsored by PD&amp;MS Group</em></td>
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OPENING PLENARY
12:00 – 13:45

Welcome addresses:
Kamel Ben-Naceur - 2022 SPE President
Neil Saunders - Executive Vice President, Oilfield Equipment, Baker Hughes – Conference Chair
Ivan McKee MSP - Minister for Business, Trade, Tourism and Enterprise, Scottish Government

Moderator(s)
Iman Hill, Executive Director, IOGP

Executive Plenary Panel(s):
Gordon Birrell, Executive Vice President, Production & Operations, BP
Al Cook, Executive Vice President, Development & Production International, Equinor
Phil Kirk, President & CEO Europe Harbour Energy
Chris Stark, CEO, Committee on Climate Change
Nicholas Pfaff, MD, Head of Sustainable Finance and Secretary of the Green Bond Principles (GBP) and the Social Bond Principles (SBP), International Capital Market Association

01 Smarter and More Efficient Field Development I
14:45 – 16:15

Innovative and analytical thinking continues apace in our industry driving the energy transition, making previously uneconomic fields viable and boosting the life and output of existing fields. Across two Smarter and More Efficient Field Development sessions presenters will highlight the role our industry is playing in the energy transition and clearly describe the value of exciting new completion and production technologies.

Richard Harmer, Schlumberger
Morten Jensen, Schlumberger

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<th>Time</th>
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<tr>
<td>14:45</td>
<td>205405</td>
<td>A Real-time Fiber Optical System for Wellbore Monitoring: A Johan Sverdrup Case Study</td>
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<td></td>
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<td>M.G. Schuberth, H.S. Bakka, Equinor ASA; C.E. Birnie, Formerly Equinor ASA, now at King Abdullah University of Science and Technology (KAUST); S. Dümmong, K.E. Haavik, Q. Li, J. Synnevåg, Y. Saadallah, L. Vinje, K. Constable, Equinor ASA</td>
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<tr>
<td>15:15</td>
<td>205433</td>
<td>A Road Map for Renewable Energy Integration with Subsea Processing Systems</td>
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<td>J. Pimentel, R. Slater, Aker Solutions Ltd; A. Grant, R. Vesterkjær, T. Normann, Aker Solutions AS; J. Sandberg, Aker Offshore Wind; R. Kothari, Aker Solutions AS</td>
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<tr>
<td>15:45</td>
<td>205450</td>
<td>Optimizing Wellbore Trajectories for Closed Loop Geothermal Operations</td>
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<td>15:45</td>
<td>205456</td>
<td>Data Analytics Software for Automatic Detection of Anomalies in Well Testing</td>
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<td></td>
<td>S. Capponi, C. Nwachukwu, Shell Exploration and Production</td>
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</tbody>
</table>
02 Reservoir Characterisation and Flow Modelling
14:45 - 16:15  (TECHNICAL SESSIONS)

Successful development, monitoring, and management of a reservoir is simply impossible without its prior characterization. The oral and e-poster presentations in this session aim to cover a broad range of such high-quality, characterization-related studies, including: the use of in-well sensing for flow and fracture monitoring; AI-assisted real-time reservoir characterization; and physics and thermodynamics of fluid flow in porous media.

Khafiz Muradov, Heriot-Watt University
Iain Percival, University of Aberdeen

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<tbody>
<tr>
<td>14:45</td>
<td>205447</td>
<td>Complete EOS Thermal Formulation for Simulation of CO2 Storage</td>
<td>A. Moncorgé, M. Petitfrère, S. Thibeau, TOTAL</td>
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<tr>
<td>15:45</td>
<td>205461</td>
<td>Downhole Monitoring of Fractures in a Waterflood Development - Part 1</td>
<td>A. Kohli, Shell; O. Kelder, NAM BV; M. Volkov, R. Greiss, TGT Oilfield Services UK; N. Kudravaya, A. Galyautdinov, TGT Oilfield Services</td>
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<tr>
<td>Alternate</td>
<td></td>
<td>Real Time Cloud-based Automation for Formation Evaluation Optimization, Risk Mitigation and Decarbonization</td>
<td>R. Nye, C. Mejia, E. Dontsova, Enovate Upstream</td>
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</tbody>
</table>

CCUS & Hydrogen: Can we Deliver at Scale?
14:45 – 16:15  (KEYNOTE PROGRAMME)

CCUS & Hydrogen are essential to the Net Zero ambition, but real progress so far has been slow. Governments across Europe recognise that without rapid delivery at scale of CCUS and Hydrogen as part of the Energy Transition, a Net Zero target cannot be reached. We need to accelerate deployment at industrial scale and close the gaps that are currently in the way.

Co-hosted by Net Zero Technology Centre and NECCUS, this session will host speakers from government to industry to technology developers and explore these gaps, what is being done already and what more is needed to achieve the full environmental and economic benefits that Hydrogen and CCUS promise.

We will ask them:
- Do we have the right policies in place, is the business case clear enough to drive investment?
- What is the role of the UK industrial clusters in creating the wider value chain for Hydrogen and CCUS?
- How can we leverage the Oil & Gas sector knowledge, skills, technology and infrastructure capital to accelerate CCUS and Hydrogen progress and enable a just transition?
- What’s the current status and cost level of the technology required, and what disrupting solutions are on the horizon with the potential to change the game for CO2 capture, usage, storage and H2 generation.

Session Chair(s) and Moderator(s)
Colette Cohen, CEO, Net Zero Technology Centre
Mike Smith, CEO, NECCUS

Speakers
Janne Harstad Raasten, VP Carbon Capture - Renewables, Aker Carbon Solutions
Malcolm Forbes-Cable, Vice President - Upstream Consulting, WoodMac
Simon Bennett, Energy Technology Analyst, IEA
Paul Bogers, Vice President Hydrogen, Shell
Energy Islands: Stepping Stones to a Faster Energy Transition to Net Zero!
14:45 – 15:45

As part of its commitment to the Paris climate agreement of 2015, the European Union has set a target to achieve net zero emissions by 2050. As an important milestone towards this target, it has proposed emission reductions of 55% by 2030, when compared to 1990 levels, and to achieve this target it has assigned 30% of its Euro 880 billion post-Covid recovery stimulus towards tackling climate change. A key aspect of achieving its ambitious targets, and as part of the “Green Deal” spending plans, the EU has set an ambitious target for offshore wind development of 450GW of capacity by 2050, from about 20GW today. The UK Govt, for its part, has set an ambition to achieve 40GW of offshore wind by 2030, from about 10GW today.

To achieve these ambitious targets for offshore wind, the deployment rates would need to increase substantially, and acreage further offshore would need to be developed to accommodate this growth in capacity, not least to overcome maritime spatial planning and attendant consenting issues. Going further offshore also has its advantages of higher wind speeds and therefore higher capacity factors associated with electricity generation. However, connecting offshore wind farms from further offshore to shore would be cost prohibitive if considered in isolation.

The Energy Island concept offers a viable solution to connect clusters of offshore wind farms that are further offshore thereby facilitating the larger deployment rates set out in the EU and UK targets. In addition to acting as a hub to enable bulk electrical transmission connections to countries adjacent to the North Sea, it provides the possibility for sector coupling (power-to-gas), through connections to existing gas infrastructure in the vicinity. Doing so would create “flexibility” in the energy system that in turn would enable further development of offshore wind and thereby a faster transition to a low carbon energy system.

However, the development of such islands faces political, regulatory, economic and technical challenges that would need to be overcome. The purpose of this session is to understand the concept of Energy Island, the opportunities from, and the challenges to, the development of such islands as steppingstones to a faster energy transition and seeks to outline the critical success factors for its development.

Session Chair(s):
Arne Gurtner, Senior Vice President, UK and Ireland Offshore, Equinor
Prajeev Rasiah, Executive Vice President & Regional Manager, Northern Europe, Middle East & Africa, DNV

Session Moderator(s):
Cornelis (Cees) Plet, Principal Consultant, DNV

Speakers:
Gunther Newcombe OBE FEI, Project Coordinator, ORION Energy Hub (Shetland Islands)
Asheya Patten, Commercial Director, National Grid Interconnectors
Jasper Vis, NSWPH/TenneT
Poul-Jacob Vilhelmsen, Chief Project Manager, Energinet.dk
Leif Winther, Chief Market Developer, CE Market Development Offshore, Ørsted
**03 Future Operations**

12:00 – 13:30

This session will bring a variety of perspectives to bear, allowing different models for “Future Operations” to be developed. The papers will discuss case studies that shine a light on best practice allowing development. There will be the opportunity to explore text based data mining as a learning tool, where we can look back to properly look forward. Finally, there will be a discussion on the innovative use of drones as a measurement device, promoting “outside the box” thinking to make innovative use of existing technology and drive things forward.

**Grant Affleck**, British Geological Survey  
**Kevin Gallagher**, CNOOC International Limited

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<th>Title</th>
<th>Authors</th>
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<tbody>
<tr>
<td>1200</td>
<td>205419</td>
<td>Fast, Environmentally Sound and Efficient Well Clean-up Operations: Lessons Learned and Best Practices From Operations Around the World</td>
<td>Y.A. Shumakov, F. Hollaender, A. Zhandin, Schlumberger</td>
</tr>
<tr>
<td>1230</td>
<td>205443</td>
<td>Natural Language Processing and Text Mining Approaches in Production Shortfalls Analytics: Methodology, Case-study and Value in the North Sea</td>
<td>E. Bernier, S. Perrier, Total</td>
</tr>
<tr>
<td>1300</td>
<td>205467</td>
<td>Application of Long Endurance UAS for Top-down Methane Emission Measurements of Oil and Gas Facilities in an Offshore Environment</td>
<td>C.A. Tavner, Flylogix Limited; D. Touzel, Bp; B. Smith, SeekOps Inc.</td>
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<tbody>
<tr>
<td>205462</td>
<td>Application of Laser and Plasma for Thermal Assisted Drilling in Carbonated Formations</td>
<td>M. Bazargan, Royal Holloway University of London</td>
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**04 Integrated North Sea**

12:00 – 13:30

An integrated North Sea net zero energy system will be essential if the UK is to meet its commitment to the Paris Agreement. The infrastructure investment and technological innovation needed to deliver this system will be immense; and the oil and gas industry has a pivotal role to play making this happen. Our industry must seize the opportunity to develop and deploy technologies and projects that will help the world move to a net zero energy future. This session will provide an insight into the challenges and opportunities that lie ahead.

**Drummond Lawson**, Subsea Technologies Ltd.  
**Martyn Tulloch**, The Oil & Gas Technology Centre

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<tr>
<td>1200</td>
<td>205448</td>
<td>Accelerating Technology Adoption: A Benchmarking Study of Organisational Innovation Adoption Culture in Upstream Oil and Gas</td>
<td>R. Roberts, R. Flin, Robert Gordon University; L. Corradi, OGTC</td>
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<tr>
<td>1230</td>
<td>205453</td>
<td>Reservoir Simulation Studies for Planning Monitoring Schemes for CO2 Storage</td>
<td>G. Nikolakopoulos-Skelly, Imperial College; M.A. Giddins, R. Xu, C.F. Ezeogu, Schlumberger; M.D. Jackson, Imperial College</td>
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</table>
Data and Digitalisation: How a 21st Century Industry can Unlock Greater Value Creation; Lower Carbon Footprint and Lower Cost
12:00 – 13:15

It could be argued that for the industry to survive well into the 21st century, it must remain attractive to investors; relevant to governments and policy makers; and committed to helping provide solutions to tackle climate change. So how important a role will data and digitalisation have in helping industry achieve the twin goals of being “low cost, low carbon”?

Increased access to more and more high quality data, alongside the adoption and widespread integration of digitalisation is already helping lower costs, increase uptime, improve efficiency and has the potential to enable solutions for net zero.

What will be the next great leap to achieve next-level low cost/low carbon sustainability?
This session will highlight case studies of how value is being unlocked through deeper integration of data analytics, collaboration with the supply chain and effective use of digital technology. The session will also examine the role of regulators in helping create a level playing field in terms of data quality and availability in order to both stimulate activity, target interventions and unlock new opportunities. The session will hear from other industries which have already successfully undergone a digital transformation to share lessons learned.

Session Chair(s):
Chris Walker, Head of Comms and External Affairs, OGA
Tommy Sigmundstad, Senior VP Drilling & Wells, AkerBP

Session Moderator(s):
Maxine Mayhew, Managing Director, Costain

Speakers:
Nic Granger, Director of Corporate and Chief Financial Officer, OGA
Karl Johnny Hersvik, CEO, AkerBP
John Markus Lervik, CEO, Cognite
May Karin Mannes, Director of Analysis and Data Management at the Norwegian Petroleum Directorate
Richard Dewar, Head of Business Development & Operational Requirements ISR/EW BAE Systems Air Sector
David Rawlinson, Head of Air Labs, BAE Systems

Road to Net Zero – Will our Actions get us There?
12:00 – 13:00

The world urgently needs to put a laser-like focus on bringing down global emissions. Even in the most rapid transition scenarios, the Oil and Gas industry are still forecast to make up almost a half of primary energy consumption. The industry players, under pressure from society, investor sentiment, and regulation, are responding with ambitious carbon neutrality goals.

In order to meet these goals, the industry will need a new era of collaboration and co-ordination from both within the supply chain but also outside, with governments, regulatory bodies and NGOs.
This session will map the road towards decarbonising the oil and gas industry: the role the industry must play; the challenges and opportunities; and ask the question “will it be enough?”.
We will focus on the actions the industry is taking via the framework of the three “scopes” (scope 1, scope 2, and scope 3) that are defined for GHG reporting purposes.
We will introduce themes from the road map that will have the largest potential contribution towards lowering GHG emissions including energy optimisation, electrification, flaring and venting reductions, CCS and hydrogen, asset re-purposing and re-use. We will ask can we: align, borrow, rapidly adopt, scale, standardise; to progress along the road map and deliver the cultural shift in the industry required?

Session Chair(s) and Moderator(s):
Concetto Fischetti, Energy Transition Director, IOGP
Hari Vamadevan, Regional Director, UK and Ireland, Energy Systems

Speakers:
Michael Tholen, Sustainability Director, OGUK
Bjorn Otto Sverdrup, Chairman of the Oil and Gas Climate Initiative (OGCI) Executive Committee
Ditlev Engel, CEO Energy Systems, DNV
Carlos de la Peña, Senior Vice President, Strategy, BP
Lord Duncan of Springbank, Deputy Speaker House of Lords
**Getting in Control of Asset Performance Management**
14:00 – 14:30  [SPONSORED SESSION BY ABB](#)

In this session we will discuss what energy operators are doing to drive operations and maintenance improvements using people, process and technology. Reimagining your approach to maintenance to drive costs down and reliability up with a six step plan.

**Speaker:**
Will Leonard, Digital, Innovation and Technology Lead, ABB Energy Industries

**Moderator:**
Kevin O’Donovan, Independent Technology Evangelist

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**Managing the Offshore Hydrocarbon Legacy whilst Enabling a Vibrant Offshore Future – Why Late-life & Decommissioning Activity is Pivotal to Success**
14:00 – 14:30  [SPONSORED SESSION BY DECOM NORTH SEA](#)

The late-life and eventual decommissioning of offshore hydrocarbon facilities is a certainty as offshore fields decline and become uneconomic. Whilst the exact timing is regarded as an economic question and dictated by the vagaries of macro market forces, the trend of reducing profitability is usually highly connected to increasing technical challenges within a field or its associated reservoir. So whilst the timing is a variable the trend is usually clear.

This trend towards a high and increasing number of developments in the late-life and decommissioning phase is now evident. Alongside this evident trend, the accelerated development in other offshore sectors is also clear to see, whether it is offshore wind, CCS or hydrogen. Again, the timing may be susceptible to change but the trend is evident.

We are therefore presented with a unique challenge and opportunity to take a more holistic look at the skills and demands of offshore operations and marry the benefits of skills, expertise and experience to reduce costs, maintain world-beating safety standards and development new industrial sectors.

**Speaker:**
Will Rowley, Business Advisor, Decom North Sea

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**Technology Driving Transition:**
**The Net Zero North Sea Vision**
14:00 – 14:30  [SPONSORED SESSION BY NZTC](#)

Energy is in transition. We need more of it, but we need it to be net zero. What does that mean for the North Sea offshore oil & gas industry?

Technology innovation is key in the energy transition. The Net Zero Technology Centre exists to transform the energy industry: drive down costs, increase efficiency and help deliver a net zero energy system.

**Luca Corradi,** Innovation Network Director, NZTC
05 Smarter and More Efficient Field Development II
14:45 – 16:15

Innovative and analytical thinking continues apace in our industry driving the energy transition, making previously uneconomic fields viable and boosting the life and output of existing fields. Across two Smarter and More Efficient Field Development sessions presenters will highlight the role our industry is playing in the energy transition and clearly describe the value of exciting new completion and production technologies.

Dennis Johnston, Neptune Energy
Ian Phillips, Pale Blue Dot Energy Limited

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1445 205417
North Sea Horizontal Well with Multi-zone Completion Sets World Record Using Acid Jetting Technology
B. Ritchie, E.M. Elhassan, TOTAL E&P; T. Jorgensen, K. Solhaug, Fishbones AS

1515 205449
First Successful Controlled Dumpflooding in Deepwater Gulf of Mexico Results in Promising Incremental Rate and Recovery

1545 205403
Development of API 11D1 And API 19AC Validation Grade V0 Barrier-qualified Gravel Pack System for Troll Phase 3 Big-Bore, High-Rate Gas Completions on the Norwegian Continental Shelf

Alternate 205407
Annular Phase Separation with AICD Completions: The Impact on Well Flow Performance and Control of Unwanted Effluents
M.R. Konopczynski, Tendeka Inc.; M. Moradi, Tendeka BV

06 Decommissioning
14:45 – 16:15

Decommissioning is accelerating, and so are the opportunities to optimise decom. The session touches on the latest examples how decommissioning can be optimised, both technically (well P&A) as well as environmental impact. The session will show an innovative interpretation technique for well P&A, and look at recent re-use opportunities that reduce the decommissioning impact.

Rebecca Allison, The Oil & Gas Technology Centre
Rob Jansen, Shell

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1445 205431
Optimizing Casing Cut and Pull Operations Efficiency Using Ultrasonic Logging Data
T. Winther, Former Schlumberger; G.A. Obando Palacio, A. Govil, Schlumberger

1515 205468
The Environmental Benefits of Repurposing Tubular Steel from North Sea Oil and Gas Fields
R.W. Holdway, M.P. Dowling, Giraffe Innovation; I. Bell, I. Lawrie, John Lawrie Tubulars

1545 205446
Feasibility of Repurposing Offshore Decommissioned Gas Rigs Into Fish Farms
S. Pal, C. Kuo, University of Strathclyde

Alternate 205439
Initiatives in UK Offshore Decommissioning Following the Wood Review: Applicability for Decommissioning in Norway
R. Vikane, J.T. Selvik, E.B. Abrahamsen, University of Stavanger
Facilities of the Future – An Integrated Approach to Energy Efficiency, Decarbonisation and Automation
14:45 – 16:15

Offshore energy production facilities have traditionally been developed to operate as stand-alone independent entities. These islands, each with their own import and export routes, transport links, accommodation and services and electrical power generation and distribution have served the industry well for decades. However, it is increasingly recognised that for the provision of cost effective and environmentally acceptable provision of energy from our offshore resources we require a step change in the way which we develop and operate the infrastructure. Offshore which hitherto had largely been the realm of oil and gas development is progressively being populated by renewable wind and tidal power facilities. The supply industry which had grown round oil and gas is diversifying into these new opportunities. The new digital and robotic technologies are finding a ready home within an industry which needs to reduce manning levels.

Session Chair(s) and Moderator(s):
Peter Blake, CEO, Seaonaid Subsea
Troy Stewart, Head of Energy Industries UK/IE, ABB Ltd

Speakers:
Asmund Maland, Senior Vice President & Segment Manager for the Subsea and Offshore Power segment, ABB
Olav-Bernt Haga, Vice President Project Director Offshore Wind Hywind Tampen, Equinor
Marit Mork, Manager Innovation Projects, TechnipFMC
Guillaume Chalmin, Senior Vice President Development and Support to Operations for E&P and Senior Vice-President, TotalEnergies

Scaling up Digital to Enable Low-Carbon O&G Industry
14:45 – 16:15

Since SPE Offshore Europe 2019, we’ve seen significant digital investment by operators and service companies, as well as in start-ups and research. Should we be encouraged by the progress, or are we moving at a snail’s pace? What are the sticking points, and are we prepared to address them?

With the competitiveness of our industry at stake, this session will examine how far our industry has come—and what’s still to be achieved—to make the most of digital as an effective enabler to increase the value we generate, enhance our operational efficiency, and reduce our environmental impacts.

Technology, innovation, and vast volumes of data have been attributes of success for the oil and gas industry for decades. Recent world events have reinforced the importance of digitalisation, particularly for enhanced remote operations. However, successful implementation of digital in our industry must be broader and deeper than remote operations alone. We must make smart use of digital capabilities across domains and workflows, from concept to production.

The promise of digitalisation is immense. Though some areas will hold order of magnitude improvement, in other areas, there are overinflated expectations. The industry must focus on real business value, attracting and developing new talent, and reducing environmental impacts—all through digitalisation and automation. If tackled correctly, digital provides an opportunity for our industry to demonstrate to society how we can unlock energy for the benefit of all, sustainably.

Our panellists for this session come from the oil and gas industry and beyond—from diverse backgrounds and varied subject matter expertise. The speakers will share real-world examples addressing thought-provoking questions, such as:

- When will we see unmanned facilities offshore North Sea?
- Why don’t we see a reduction in the time between discovery and first production?
- Where are the performance improvement results from digital tools?
- How can we best learn from other industries?
- How fast-scaling of digital can enable a low-carbon O&G industry?

Session Chair(s):
Wallace Pescarini, President Offshore, Schlumberger
Jean-Luc Guiziou, UK Managing Director, TotalEnergies

Session Moderator(s):
Manish Chawla, Global Director for Energy & Natural Resources, IBM

Speakers:
Carri Lockhart, (Technology, Digital & Innovation (TDI), EVP), Equinor
Hinda Gharbi, (EVP Products & Services), Schlumberger
Nicolas Simone, Digital Transformation Officer, Petrobras
07 Mature Fields
12:00 – 13:30

Innovation in technology and ways of working are required to enable continued profitable performance from mature fields. In this session, technology from outside the hydrocarbon industry, pushing the envelop of current technology application and use of AI to optimise maintenance (OPEX) performance will be presented and discussed.

Iain Percival, University of Aberdeen
Claus Vissing Jorgensen, Total

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08 Floating Wind
12:00 – 13:30

With the addition of Floating Offshore Wind areas to the UK’s future energy policy in this year’s round 4 Offshore awards there are multiple opportunities for new and existing technologies to be deployed in this emergent sector. The session will review the current status of our validation techniques of mooring technologies exploring within expected life limits. The session will also cover proposals for floating turbines for generation and substations for collection and on pass of generated power.

Grant Affleck, British Geological Survey
Lydia Coffey, Worley

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Floating Substations for Commercial-Scale Floating Windfarms
J. Jones, I. Childs, Petrofac

Mooring Integrity in Electrification Projects - Learning from the Floating Production Sector in Early Years of Harsh Environment Operations
N.J. Robinson, S.M. Rosie, Apollo Offshore Engineering

Validation of a Novel Floating Wind Turbine Simulation Tool via Benchmarking: Case Study of a Semi-submersible Platform
A.J. Connolly, G. O’Mahony, Wood
Brave, Bold, and Better: Breaking the Silo Paralysis
12:00 – 13:00

As we continue to adapt and evolve to meet the changing needs of our fast-moving world, we see the increasing and sizable prize for those willing to work and think differently; challenging traditional approaches, forging new working relationships and being bold to drive the change. With empowerment and shared accountability, we can shift the paradigm and unlock the full potential of the supply chain in our quest to maximise economic recovery, as part of an integrated energy mix and more sustainable future. Together, we have the potential to drive a step change in the economics and carbon intensity of oil and gas operations. Capitalising on our collective strength has immense potential – we bring the best of our competence, capability, and experience, together with an empowered and motivated workforce to drive better results. But what does that look like, and how do we get there? This session will explore the challenges and opportunities of integrated partnerships, unlocking the potential of the supply chain, and the outcome-based commercial models that will drive enhanced and mutual value.

Session Chair(s) and Moderator(s):
Graeme Gordon, VP Production, North Sea, BP
Craig Shanaghey, President Operations Services Europe & Africa, Wood

Speakers:
Katy Heidenreich, Supply Chain & Operations Director, OGUK
Professor Paul de Leeuw, Director, RGU Energy Transition Institute
Graeme Gordon, VP Production, North Sea, BP

What Does the Future of Oil and Gas look like in the UKCS, and How do Companies need to Adapt to Realise the Opportunity?
12:00 – 13:00

The last ten years or so has seen the oil and gas industry in the UKCS go through dramatic change. This change has impacted operators, service providers and the supply chain in unprecedented ways. We have seen very variable pricing for oil and gas, and a strong social pivot towards the energy transition and decarbonization. However, great interest and opportunity prevails in making a success of the remaining life in the basin. This session seeks to understand what the future of oil and gas looks like in the UKCS, and how companies will need to adapt to realize the opportunities available. This keynote will bring together the regulator and a selection of operators who are at different stages of their evolution. We will hear from each of them as to how they have pivoted to ensure success, at differing states of company size and maturity.

Session Chair(s) and Moderator(s):
Sian Lloyd-Rees, UK Country Manager, Aker Solutions
Jim Lenton, MD Integrated Solutions, Worley

Speakers:
Andy Samuel, CE, OGA
Simon Roddy, SVP Upstream Shell
Victoria Cameron, External Relations Head at Kellas Midstream
John Penrose, Director of Energy Transition, Enquest
**Offshore Wind - Enabling Safe, Reliable and Efficient Operations for a Sustainable Energy Future**

14:00 – 14:30  

In this session we will be discussing the importance of offshore wind power in supporting the energy transition. We will highlight how existing automation, electrification and digital technologies are being applied to offshore wind facilities and examine how ABB are working with customers to ensure safe, reliable and efficient operations and infrastructure. Finally, we will provide insights about the future of offshore wind, as the energy sector continues to adapt to an ever-changing landscape and showcase how ABB’s technologies are helping customers to build resilience and adaptability for sustainable growth.

**Speaker:**  
Martin Kjäll-Ohlsson, Vice President, Offshore Power Lead, ABB Energy Industries

**Moderator:**  
Kevin O’Donovan, Independent Technology Evangelist

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**09 Subsea**  
14:45 – 16:15  

Subsea is a cost effective, safe and reliable method for the development of oil and gas resources in harsh and deepwater environments. The oral present exciting new technologies for increasing subsea water injection volumes, improved detection of gas releases and reduced hydrate management costs. The poster session covers reduced pipeline pigging through improved wax deposition modeling, advanced analysis methods that reduce connector testing costs and improved recovery though better use of sensors and gauges.

**Annabel Green,** Well-SENSE  
**Colin McKinnon,** John Wood Group PLC

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### Technical Sessions

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<th>Time</th>
<th>Code</th>
<th>Title</th>
<th>Authors</th>
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<tbody>
<tr>
<td>1445</td>
<td>205426</td>
<td><strong>Pump Up The Volume - Massive Water Injection Increase Through Open Water Stimulations</strong></td>
<td>A.M. Roy, A. Bird, BP; S. Bremner, Schlumberger; L. Winstone, BP; R. Hashimov, OneSubsea; D. Weir, BP; J. Espinoza Perez, Maxtube Limited</td>
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<tr>
<td>1515</td>
<td>205428</td>
<td><strong>In-situ Sensing of Underwater Gas Releases</strong></td>
<td>C. Laddha, Shell Global Solutions International BV; L. Ortiz-Soto, L. Baksmaty, Shell International Exploration and Production Inc.; J. Dominguez Olivo, Sinclair Energy Partners Ltd.</td>
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<tr>
<td>1545</td>
<td>205412</td>
<td><strong>A Validated Methodology to Establish Structural Capacities for Subsea Connector Families</strong></td>
<td>M.J. Stephens, S.J. Roberts, Expro North Sea Ltd.; D.J. Bennet, AAC Clyde Space (formally Expro North Sea Ltd.)</td>
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**10 Hydrogen**  
14:45 – 16:15  

Hydrogen is fast becoming a focus for major new projects supporting the energy transition. Whilst few projects are in execution, a great number of projects are in the identification and concept select phase and a steep learning curve applies. This session will hear from some examples in the UK sector, both on- and offshore, to showcase this new industry.

**Rob Jansen,** Shell  
**Olivier Peyret,** Schlumberger
Championing Diversity & Inclusion: How Embracing our Differences will be Key to Reaching Net-Zero
14:45 – 16:15

Intersectionality is about the individual aspects of our identity combining in complex ways to create unique experiences of discrimination and privilege. This means that many forms of discrimination; be that racism, sexism, or ageism, might be present and active at the same time in a person’s life. Understanding this and the concept of intersectionality is key to fundamentally rebalancing and levelling the playing field for all. This session will consider how the concept of intersectionality has transformed our understanding of diversity and inclusion and how we can embrace it to create a fairer and more equal workforce. We know that our people are what makes this industry special, coming up with new ideas and innovations to overcome the complex challenges industry faces. By understanding intersectionality, embracing our individuality, and aspiring to create a workplace which is diverse and inclusive, we will reap huge benefits and see real diversity of thought and ideas continue to give us the solutions we need on the journey to net-zero.

In this session, we will look at how our own industry can embrace this concept, what we have achieved so far, what is yet to come, and what we can learn from other industries.

Session Chair(s) and Moderator(s):
Scott McGinigal, VP Business Services, CNOOC International Ltd
Deirdre Michie OBE, CEO, Oil & Gas UK

Speakers:
Hashi Mohamed, Barrister, Broadcaster, Commentator and Thought Leader, London Speaker Bureau
Scott McGinigal, VP Business Services, CNOOC International Ltd
Hisham Hamid, Completion Engineer, BP
Iman Hill, CEO, IOGP
Dr Alix Thom, Workforce Engagement & Skills Manager, OGUK
Risk Management and Rapid Decision Making in a Burgeoning Crisis
14:45 – 16:15

Covid-19 has had a sudden and major impact on the industry, from existing modes of operation, to investment commitments and regulatory requirements. The impact on cross sector collaboration, ways of working and operating philosophies on the one hand, to broader considerations of regulatory frameworks on the other, the effect of Covid-19 has been far reaching. This session will discuss how current practices have had to be adapted in real time to adjust to an evolving crisis situation, from a macro, global scale to the perspective service provision in our own offshore oil and gas sector. The session will explore pre- and post-crisis risk management, its evolution over time, and how this has influenced decision making, drawing out any lessons learned and outcomes that these have entailed.

Managing macro-scale crises: Whether Covid-19 or another (semi-) global event, global organisations like the UN are often at the forefront of managing large scale crises. Often times a paradigm shift on the existing modus operandi is required, or the priorities need to be reframed. This element focusses on how large multinational or global crises can affect the current paradigm from different perspectives of the global economy, geopolitics, health and safety.

Regulatory environment: This element focusses on how the energy and oil and gas regulatory environment has adapted to the Covid-19 crisis. The need for consistency and alignment in regulatory changes nationally, or cross-border can be challenging to achieve in calm times. How has the industry coped as a whole? Have certain areas managed better? What examples of best practice have been observed? Are there any lessons to learn and how can we leverage to enable the sector to be more resilient?

Oil and gas sector service provision: This element uncovers how manning and conducting operations in a safe and secure way is adapting to the changing environment. It looks at the evolving journey of improved safety performance and the associated safety and operating philosophies and the practical implementation of new concepts. It will explore how Covid-19 has influenced behaviours, against a backdrop of a tough cost focussed economic environment and what lessons could be learned.

Session chair(s) and moderator(s):
Ritva Westendorf-Lahouse, Communications Director, IOGP
Alexandra Thomas, Managing Director UK, Neptune

Speakers:
Erik Giercksky, Head of Ocean Business Action Platform, UN Global Compact
Mariana Carvalho, Senior Manager for the Health and Safety Committees, IOGP
Tim Rolfe, CEO, HeliOffshore
Kick Sterkman, HSEQ Director, Neptune Energy
**11 Decarbonisation**  
**12:00 – 13:30 [TECHNICAL SESSIONS]**

Decarbonisation is fundamental to achieving net zero targets. But, for the oil and gas sector, it is also a pathway to maintaining a social licence to operate. Innovative solutions are contributing to lower emissions, but these need to be commercially viable to attract sustained investment. This session will explore several decarbonisation solutions that are being developed to reduce operating emissions at offshore installations and look at options to mitigate risks associated with financing innovative technologies.

Maria Bonikowska, Air Liquide America Corp.  
Jessica Brewer, Wood Mackenzie

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<td>The Journey To Net Zero: Driving Down Emissions From Bp’s North Sea Operations</td>
<td>S. Coupland, BP</td>
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<td>1230</td>
<td>Net Zero Facilities - Green Power Generation Offshore</td>
<td>J. Varney, R. Dyson, io consulting; V. Khan, McDermott; C. Dartnell, Schneider Electric</td>
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<tr>
<td>1300</td>
<td>Financing Net Zero: Addressing Technology Risk for Financial Investments in the Energy Transition</td>
<td>J. Young, Strategic Growth Services; M. Dawes, OGTC; A. Smith, Deja Blue Consulting; K. Lake, Siemens Energy; K. Lawton, Wood plc</td>
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<td>Decarbonisation - Act Now: An Accessible Pathway for All Upstream Operators to Reduce Direct Emissions</td>
<td>S. Jones, A. Joyce, N. Balasubramanian, DNV</td>
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**12 Digital Drilling**  
**12:00 – 13:30 [TECHNICAL SESSIONS]**

Our industry has responded to low oil and gas prices with a renewed focus on improving efficiencies and cutting costs. Many digital oilfield technologies are being actively field tested while others have delivered proven value and are paying dividends for early adopters. The Digital Drilling session will present the results of technologies deployed in field operations, with a focus on surface and downhole sensor data utilization, combined with big data modelling software and analytics.

Mats A Andersen, NOV  
Morten Jensen, Schlumberger

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<tr>
<td>1300</td>
<td>Implementation of a Digital Roadmap with Best-in-Class Applications</td>
<td>J. McIntosh, GirlingMcIntosh; R. Martin, Repsol; P. Alcala, Boston Consulting Group; S. Skjævesland, Kongsberg Digital; J.M. Rigg, TDE</td>
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<td>Utilizing High-frequency In-bit Sensor Data Improves Drillbit Design and Modelling</td>
<td>B. Krough, P. Corbitt, M.L. Cazares Gomez, J. Masdea, Smith Bits, A Schlumberger Company; D. Scadden, Whiting Petroleum Corporation</td>
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### 13 Health and Safety

**12:00 – 13:30**

Naturally Health and Safety is at the top of everyone’s agenda in terms of focus, however, we typically tend to focus on immediately visible and easily remedied issues which can be addressed and then set aside. This session takes a more in depth view of some key issues relating to Health and Safety which are possibly more challenging to address, but also highlight areas of focus which cross technical boundaries and require greater awareness of largely invisible issues. Of course in light of the Covid pandemic it is maybe unsurprising that this topic is touched on, but mental health, group and individual compliance behaviours and dust exposure in the workplace are all long term challenges which both require greater awareness and require long term solutions. This session will provide an insight into these challenges and some of the considerations for how to address them going forwards.

**Rebecca Allison**, The Oil & Gas Technology Centre  
**Drummond Lawson**, Subsea Technologies Ltd.

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<tr>
<td>1200</td>
<td>205457</td>
<td>Are There Potentially Significant Long-term Health Consequences of Exposure to Fine Airborne Particulate Matter (PM$&lt;_{10}$) to Personnel on the United Kingdom’s Offshore Drilling Rigs?</td>
<td>S.T. Grainger, SOCOTEC UK LTD</td>
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<td>1230</td>
<td>205458</td>
<td>Ensuring That Fatigue is Managed in Oil and Gas Operations</td>
<td>A. Holmes, C. Ruscitto, S. Booth, Clockwork Research, a Baines Simmons Company</td>
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<td>1300</td>
<td>205465</td>
<td>Industry First AI-powered Fully Automated Safety Observation System Deployed to Global Offshore Fleet</td>
<td>N.M. Brown, A. Brown, A. DeGupta, Fennex; B. Quinn, D. Stringer, Noble Corporation; B. Yankov, Fennex</td>
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### 14 Remote Operations and Unmanned Installations

**12:00 – 13:30**

Rapid developments of remote operations have been prevalent in the offshore industry for a number of years, and travel restrictions during the COVID-19 pandemic have heightened the need to adopt these novel practices. Albeit challenging, great increases in operating reliability and efficiencies have been achieved, evolving to the benchmark for operational excellence. In this session the presenters will share their successes, drawbacks, and considerations for remote operating methodologies.

**Geoff Gough**, INEOS E&P A/S  
**Dennis Johnston**, Neptune Energy

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<tr>
<td>1230</td>
<td>205409</td>
<td>Robotics, Digital Twins and AI: Connecting the Dot Matrix</td>
<td>K. Kydd, TotalEnergies E&amp;P UK Ltd; D. Brennan, N. Kirkpatrick, Merkle; M. Wright, Phusion IM Ltd</td>
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<tr>
<td>1300</td>
<td>205444</td>
<td>Unmanned Platform Design Methodology</td>
<td>G. Nicholson, G. Brown, B. Seymour, Aker Solutions Ltd.</td>
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<tr>
<td>205427</td>
<td>Building A Low-manned Production Installation: Considerations for Rotating Equipment, Electrical and Automation Systems, and Digitalization</td>
<td>E. LaGrange, Siemens Energy</td>
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Taking immediate action to improve the industries carbon emissions profile of today, whilst also preparing for the new energy mix of tomorrow.

At PD&MS we believe multiple factors can influence carbon reduction. In alignment with OGUK’s Roadmap for 2035, PD&MS have the “STRIVE to 35” program which underpins our Energy Transition plans; Strategy, Transform, Reduce, Improve, Visionary Action and Emissions Elimination.

During the session with will give an overview of our “Carbon Bubble” offering. It focuses on understanding customer assets and operations and how energy is being consumed or lost, in order to identify opportunities for carbon reduction, energy recycling, and asset optimisation through modifications, building a carbon business case, implementing a solution and recording its impact.

Chair/Speaker:
Liam O’Neil, Chief Operating Officer

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