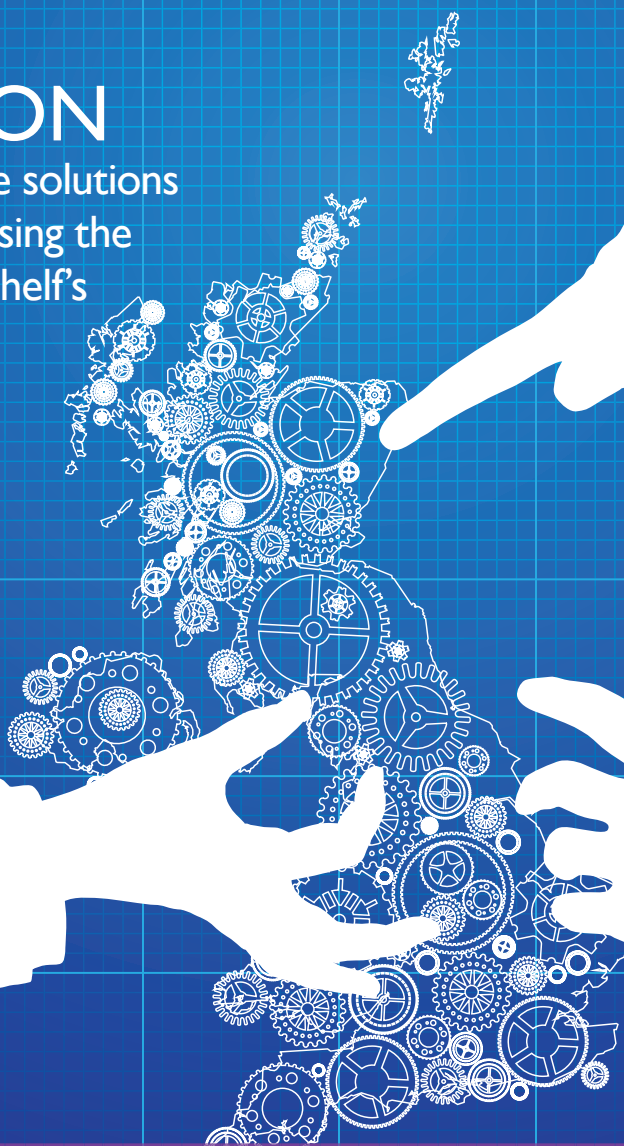


# WIRELINE

ISSUE 30 - WINTER 2014-2015

## HANDS ON

How collaborative solutions  
are crucial in realising the  
UK Continental Shelf's  
full potential  
*p13 to p21*



### EXTRACTIVE INDUSTRIES TRANSPARENCY INITIATIVE *p23*

Find out what is expected of the  
UK industry from this  
global initiative

### BENEATH THE SURFACE *p25*

With 35 years in the industry,  
Christine McKay of Maersk Oil  
champions the role of data  
management to maximise recovery of  
our indigenous hydrocarbon resources

### LIGHTING THE WAY *p29*

University spin-out companies  
Holoxica and PhotoSynergy Ltd  
talk about their journeys in joining  
the domestic upstream oil and gas  
supply chain

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# SAFETY AWARDS

*Nominations Open Wednesday 7 January 2015*



**Safety Awards**

**Wednesday 29 April 2015  
12 noon – 3.30 pm**

**AECC  
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Aberdeen  
AB23 8BL**



**[oilandgasuk.co.uk/safetyawards](http://oilandgasuk.co.uk/safetyawards)**



**@oilandgasuk | #safetyawards**

**@StepChangeInfo | #playourpart**

### REGULARS

#### 5 News round-up from Oil & Gas UK

Includes news on the first chief executive of the new Oil and Gas Authority, guidance on Ebola, the release of Oil & Gas UK's *Decommissioning Insight* and *Environment Report*, plus the energy minister's trip offshore.

#### 9 Membership matters

Oil & Gas UK's membership reaches a milestone of 500. Find out more about our 500th member.

#### 11 Dates for your diary

Save the dates and book online for Oil & Gas UK's industry-leading events. Here is your chance to network with industry colleagues and gain valuable knowledge on the sector's hot topics.

*"We've done some work on looking at the potential of applying more enhanced oil recovery on the UK Continental Shelf and I think we have surprised ourselves by finding that there's more potential than we were expecting." p19*

### FEATURES

#### 29 Lighting the way

UK universities have long been a rich spawning ground for technologically innovative companies. *Wireline* spoke to two university spin-outs – Holoxica and PhotoSynergy Ltd – about their journeys in turning an idea into a commercial product.

#### 13 Maximising economic recovery

Trevor Garlick of BP and AMEC's John Pearson, members of the interim panel advising on the implementation of the *Wood Report's* recommendations, bring us up to date on the latest developments.

#### 15 Risk versus reward

Increased investment in exploration activity is crucial for the sector's future prosperity. Yet accessing capital for exploration has its challenges and requires collaborative solutions to manage the risks and reap the rewards. *Wireline* reports

#### 19 The promise of enhanced oil recovery

Cutting-edge technology continues to play a key role in the UK Continental Shelf's success story. *Wireline* find out more about the promise of enhanced oil recovery.

#### 23 Politician's corner – Jo Swinson MP

Jo Swinson MP shares her views on the UK offshore oil and gas industry and provides an update on the Extractive Industries Transparency Initiative.

#### 25 Beneath the surface

Christine McKay, Maersk Oil's geology and geophysics data and information manager, talks to *Wireline* about her passion for promoting the role of data management in maximising recovery of our indigenous oil and gas resource.

#### 35 Celebrating our industry

The Oil & Gas UK Awards recognise the talented individuals and innovative companies that make up our industry. *Wireline* reports







*“We are looking for aligned partners to mitigate and spread risk and protect and grow hubs.”*  
p15

#### QUICK LINKS

Look out for this symbol in the magazine and scan the accompanying QR code with your handheld device for easy direct links to online material. Download the QR code reader from your app store.



Collaboration might well seem like one of those words that is often bandied about but not always put into practice. But I think now, more than ever, we as an industry must embrace the spirit of this word and take it to our hearts.

Indeed, collaboration is the key theme of Sir Ian Wood's recommendations for maximising economic recovery from the UK Continental Shelf. The *Wood Report* has now been universally recognised as an essential blueprint for taking the stewardship of our indigenous oil and gas resource to a new level and its implementation will require a truly collaborative approach across industry and between industry, the new regulator and HM Treasury. I have been pleased to see that tripartite approach in action in recent months (p5 and p13) and look forward to ongoing progress as the new regulator takes shape.

In this edition, members of our industry provide insight into many of the pertinent

issues for our industry, including the potential of applying enhanced oil recovery (p19); the challenges for smaller companies in accessing capital for exploration (p15); and the importance of sound data management (p25).

It is also vital to continue to nurture our £35 billion domestic upstream supply chain. The annual PILOT Share Fair (p8) is a key mechanism to help our world-class supply chain 'do business better' and it was fantastic to see nearly 1,500 of you at our biggest event yet. Over 2014, we also took a compact version of the Share Fair format to regional hubs, such as Newcastle and Norwich, where we successfully highlighted the business opportunities available to a large and diverse array of companies.

The breadth of the supply chain encompasses fledgling technological enterprises to global service companies. In this issue, two university

spin-out companies, PhotoSynergy Ltd and Holoxica, talk to *Wireline* (p29) about their journeys to enter the oil and gas market.

Our industry today faces very major challenges on cost and on price. Radical action is now required and a collaborative approach across all parts of the supply chain, from SMEs to major IOCs, will be required if we are to succeed.

2015 brings a significant and exciting opportunity to shape and secure the long-term future of our sector and the wider benefits it brings to our domestic economy. I'd encourage you to play your part to the full. Failure is not an option we can contemplate but success will only be achieved through collaboration.

**Malcolm Webb,**  
Chief Executive,  
Oil & Gas UK

UK  
CONTRIBUTION  
TO THE EXTRACTIVE  
INDUSTRIES  
TRANSPARENCY  
INITIATIVE  
p23

**Wireline is published by Oil & Gas UK, the leading representative organisation for the UK offshore oil and gas industry.**

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## 1. CHIEF EXECUTIVE APPOINTED FOR NEW OIL AND GAS AUTHORITY

The UK Government has appointed Andy Samuel, managing director of BG Group's exploration and production in Europe, as the first chief executive of the new regulator, the Oil and Gas Authority (OGA).

Malcolm Webb, Oil & Gas UK's chief executive comments: "Oil & Gas UK welcomes this announcement. Andy is an outstanding professional of great integrity and vision with the right qualities to take forward the industry and government's shared ambition of maximising economic recovery of the UK's oil and gas resources. We are at a critical stage in the history of UK offshore oil and gas development and bold steps need to be taken now to ensure strong activity continues into the future. Oil & Gas UK looks forward to working with Andy as he takes on this crucially important job."

*Read Oil & Gas UK's statement at [www.oilandgasuk.co.uk/news/index.cfm](http://www.oilandgasuk.co.uk/news/index.cfm).*

*Also see p13 for more details on the implementation of Sir Ian Wood's recommendations to maximise economic recovery from the UK Continental Shelf.*



1. Andy Samuel takes up his position of chief executive of the Oil and Gas Authority from 1 January 2015



Image © iStock.com/mkkrub

2.

## 2. WOOD REVIEW IMPLEMENTATION CALL FOR EVIDENCE

In the spirit of the tripartite approach recommended in the Wood Review and to support its policy making, the Department of Energy & Climate Change has launched a call for evidence. All relevant and interested parties are invited to submit their views on how the recommendations contained within the Wood Review should be implemented to ensure that the new oil and gas regulator, the Oil and Gas Authority (OGA), can fulfil its new and vital mission to maximise economic recovery from the UK Continental Shelf (UKCS).

Feedback received through this process, which included workshops in Aberdeen, Norwich and London, will inform policy development and the legislative agenda for the New Year and help ensure the OGA will be fully vested to safeguard the economic future of the UKCS.

*The call for evidence will close on 31 December 2014. If you would like to respond, please visit [www.gov.uk/government/groups/wood-review-implementation-team](http://www.gov.uk/government/groups/wood-review-implementation-team).*

## 3. UK OFFSHORE HELICOPTER SAFETY

Oil & Gas UK hosted a breakfast briefing on helicopter safety in Aberdeen on 2 October 2014, seven months after the UK Civil Aviation Authority (CAA) published a report containing a series of actions and recommendations to improve offshore helicopter safety. The event was an important opportunity to update industry on the broad range of work being undertaken by the CAA to improve helicopter safety and progress to date, including the provision of the Category A Emergency Breathing System for all workers flying offshore from the UK.

Robert Paterson, Oil & Gas UK's health, safety and employment issues director, comments: "Improvements in safety are being identified, assessed and delivered in a collaborative effort involving helicopter operators, aircraft manufacturers, regulators, oil and gas companies and groups that represent passengers."

Step Change in Safety has also created a FAQ to help answer queries about the requirement from 1 April 2015 that all passengers travelling offshore must sit in a seat where the nearest push-out emergency window is compatible with their body size.

*Presentations from the event are available at [www.oilandgasuk.co.uk/events/archive.cfm](http://www.oilandgasuk.co.uk/events/archive.cfm). Step Change in Safety's FAQs on passenger size recommendations are available at <http://bit.ly/passengersizefaq>.*



3. Mark Swan, director of the CAA's Safety and Airspace Regulation Group, outlined the actions being taken by the Authority to ensure offshore helicopter safety

#### 4. EU OFFSHORE SAFETY DIRECTIVE UPDATE

Since the formal consultation on the transposition of the EU Offshore Safety Directive closed at the end of September 2014, Oil & Gas UK and its members continue to engage with the Department of Energy & Climate Change and the Health and Safety Executive on the arrangements for the Competent Authority that will receive, handle and assess safety cases and notifications. It is important these arrangements are in place and tested early to provide confidence that they will operate efficiently for receipt of the first safety cases from July 2015. Work also continues in parallel to develop the final regulatory package and associated interpretive guidance.

*Presentations from a briefing on the EU Directive, held in London on 21 October 2014, are available to download at [www.oilandgasuk.co.uk/events/archive.cfm](http://www.oilandgasuk.co.uk/events/archive.cfm). For more information, please contact Robert Paterson on [rpateron@oilandgasuk.co.uk](mailto:rpateron@oilandgasuk.co.uk).*



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#### 7. PROMOTING EFFECTIVE AGEING AND LIFE EXTENSION MANAGEMENT OFFSHORE

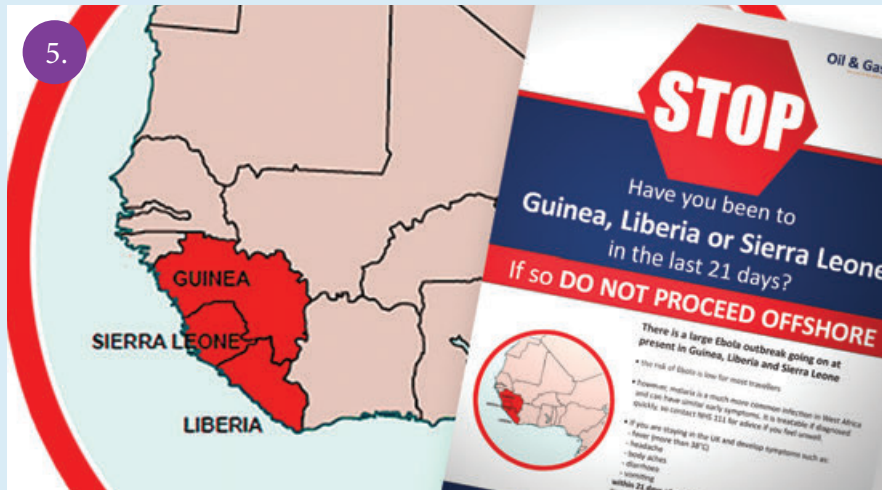
In recognition of the contribution the east of England makes to the UK's upstream oil and gas industry, an event in Norwich on 20 November 2014 sought to increase awareness among southern North Sea operators and their supply chain about the Health and Safety Executive's Key Programme 4 (KP4) report and its recommendations for effective ageing and life extension management offshore.

The delegates also heard industry best practice case studies and were given the opportunity to pose questions to a panel of experts.

*The full KP4 report is available at [www.hse.gov.uk](http://www.hse.gov.uk). Also see the autumn 2014 issue of Wireline for a feature on the importance of effective ageing and life extension management offshore at <http://cld.bz/j6xBsju#14>.*



The seminar on 20 November 2014 in Norwich discussed ageing and life extension management. Pictured is Tom Milne, health and safety manager at Oil & Gas UK



#### 5. OIL & GAS UK RELEASES GUIDANCE ON EBOLA

Oil & Gas UK has published a guidance note on the steps the UK offshore oil and gas industry should consider to protect its workers from the potential impact of the current Ebola virus outbreak. This follows advice from our medical adviser who has been liaising with both Public Health England and Health Protection Scotland.

It includes advice for employers deploying personnel to Ebola-affected countries or who have employees returning from Ebola-affected areas, in addition to recommendations for preventing cases of the disease from getting onto UK Continental Shelf offshore installations.

*The full guidance note can be viewed at [www.oilandgasuk.co.uk/ebola](http://www.oilandgasuk.co.uk/ebola) plus a poster to be distributed at heliports and workplaces.*

*International SOS has also launched a mobile app to provide up to date information for oil and gas companies on the Ebola outbreak.*

#### 6. UK ACCEPTED AS CANDIDATE FOR EXTRACTIVE INDUSTRIES TRANSPARENCY INITIATIVE

The UK has been accepted as a candidate country for the Extractive Industries Transparency Initiative (EITI), which aims to improve the transparency of the oil, gas and mining sectors. The UK will now have 18 months to produce its first EITI report and 30 months to undergo validation to become a fully compliant country.

Oil, gas and mining companies will be required to disclose the payments that they make to government while government will disclose the payments received.

*See p23 for a Q&A with Jo Swinson MP to find out more about EITI.*



Image ©Stock.com/inkbit



## 8. ANNUAL DECOMMISSIONING INSIGHT REPORT PROVIDES MARKET INTELLIGENCE

Oil & Gas UK has published its annual *Decommissioning Insight 2014* – the leading industry forecast for decommissioning activity and expenditure on the UK Continental Shelf (UKCS). The report provides a ten-year decommissioning forecast from 28 operators on the UKCS by region (see box-out right for the key findings).



It highlights the opportunity for operators and contractors to collaborate to maximise efficiency and reduce costs, and for the UK supply chain to build a competitive advantage

to meet the needs of maturing oil and gas provinces around the world. The challenge is to see a thriving decommissioning market emerge in the UK as part of a continued and sustained capital investment development programme.

*The full report is available to download at [www.cld.bz/3FgHj6r](http://www.cld.bz/3FgHj6r).*

## 10. ENERGY MINISTER TRAVELS OFFSHORE

Representatives of the Oil & Gas UK Board met the energy minister, Matthew Hancock MP, on his first visit to Aberdeen on 24 September 2014 to learn more about the industry.

Mr Hancock also travelled offshore with TOTAL E&P UK to the Elgin installation, where he met staff and received an overview from managing director Phillipe Guys about operating in the North Sea and the company's plans for the future. The minister then toured the platform before returning to Aberdeen later that day.

*These visits are important to raise awareness of the vital economic contribution made by the UK offshore oil and gas sector. Oil & Gas UK members that are interested in hosting a political site visit should contact Jenny Stanning on [jstanning@oilandgasuk.co.uk](mailto:jstanning@oilandgasuk.co.uk).*

## SPOTLIGHT: DECOMMISSIONING MARKET

### KEY FINDINGS – OIL & GAS UK'S DECOMMISSIONING INSIGHT 2014

Drawing on the plans of 28 operators in Oil & Gas UK's membership, the 2014 *Decommissioning Insight* report forecasts decommissioning expenditure over the next ten years by region and by the various components of the process.

Key findings include:

- A total of £14.6 billion will be spent on decommissioning assets on the UK Continental Shelf between 2014 and 2023.
- Forty-three per cent of the total forecast expenditure will be concentrated in the central North Sea (£6.3 billion). Many of the projects included in the survey for the first time are in this region.
- The largest category of expenditure is well plugging and abandonment at 44 per cent of the total forecast (£6.4 billion).

*The full report is available to download at [www.cld.bz/3FgHj6r](http://www.cld.bz/3FgHj6r).*



The findings from two new pan-industry projects will feed into the 21st Century Exploration Road Map Project, which aims to improve exploration success on the UK Continental Shelf

## 9. STIMULATING EXPLORATION ON THE UK CONTINENTAL SHELF

Two projects have evolved from a scoping study for the 21st Century Exploration Road Map, a programme of work that aims to improve exploration success on the UK Continental Shelf (UKCS). The first comprises an industry-wide review, led and funded by the Department of Energy & Climate Change, of exploration wells drilled in the central North Sea between 2003 and 2013 – an area deemed to hold the largest remaining potential. The second is a study, developed by the British Geological Survey, of the Palaeozoic potential of the UKCS.

*For more information, please contact Karis Vieira on [kvieira@oilandgasuk.co.uk](mailto:kvieira@oilandgasuk.co.uk). Also see p15 for an article on access to capital for exploration.*



Energy minister Matthew Hancock MP (left) visited TOTAL E&P UK's Elgin installation





### 11. ENVIRONMENT REPORT 2014 OUTLINES THE SECTOR'S PERFORMANCE

Oil & Gas UK's *Environment Report 2014*, published on 19 November, examines the overall environmental performance of the UK offshore oil and gas industry through the key metrics of emissions to the atmosphere, discharges to the sea, waste disposal, and accidental oil and chemical releases.

Mick Borwell, environment director at Oil & Gas UK, says: "The sector is controlled and regulated through a broad range of national and international legislation and the work we are doing to provide evidence on proposed regulatory changes is also included in the report."

*The full report is available to download at [www.oilandgasuk.co.uk/environment-report.cfm](http://www.oilandgasuk.co.uk/environment-report.cfm).*

### 12. DANNY ALEXANDER MP TOURS ARCHER UK

Oil & Gas UK has published two updated guidelines – *Mooring Integrity (Issue Two)* and *Tandem Loading (Issue Three)* – designed to help operators adopt advances in industry good practice for floating, production, storage and offloading vessels; floating storage units; and offtake tankers.

Oonagh Werngren, Oil & Gas UK's operations director, explains: "In producing these guidelines, our aim is to help operators decrease the rate of incidents and reduce the inherent risk of a major accident to as low as reasonably practicable in accordance with the UK's goal-setting legislation."

*Both guidelines are available to download at [www.oilandgasuk.co.uk/guidelines](http://www.oilandgasuk.co.uk/guidelines)*

*For more information, please contact Yanyan Jiang on [yjiang@oilandgasuk.co.uk](mailto:yjiang@oilandgasuk.co.uk).*



Danny Alexander MP (right) visited Archer UK on 6 November 2014

### 13. GUIDELINES PROMOTE GOOD PRACTICE FOR FPSO OPERATIONS

Danny Alexander MP, chief secretary to the Treasury, visited Archer UK Limited, a global supplier of drilling and well services, on 6 November 2014 to view their newly constructed facilities at Blackburn, near Aberdeen. Mr Alexander was briefed on the company's current activities on the UK Continental Shelf and Andy Samuel, the newly appointed chief executive of the Oil and Gas Authority, was also present. They were shown some of the new technology that Archer is using in the North Sea, including an update on their modular drilling rigs.

*Oil & Gas UK members interested in hosting a political site visit can contact Jenny Stanning on [jstanning@oilandgasuk.co.uk](mailto:jstanning@oilandgasuk.co.uk).*



One-to-one sessions at PILOT Share Fair offer the unique opportunity to meet many potential clients in one day and discuss forward business plans



### 14. CELEBRATING SUPPLY CHAIN BEST PRACTICE

With nearly 1,500 delegates, exhibitors and presenters, PILOT Share Fair, on 5 November 2014 in Aberdeen, once again offered a major networking opportunity for attendees. Delegates were the first to hear about the latest business development opportunities from major operators and contractors and members of the supply chain participated in over 950 one-to-one sessions with potential clients.

Twenty-five operator and contractor companies received awards at the event in recognition of their commitment to the PILOT Supply Chain Code of Practice (SCCoP). The SCCoP is a key tool to help industry improve performance, eliminate unnecessary costs and boost competitiveness.

*To download the presentations, please visit [www.oilandgasuk.co.uk/PILOTSharefair](http://www.oilandgasuk.co.uk/PILOTSharefair). Save the date for the 2015 event on 4 November. For more details on the SCCoP award winners, visit <http://bit.ly/2014awardwinners>.*



13.

## MEMBERSHIP MATTERS

**MEMBERSHIP REACHES 500!**

Nearly 100 new members have joined Oil & Gas UK in the past year, bringing the total membership to a milestone of over 500. We are pleased to welcome the following companies which have joined Oil & Gas UK since the last issue of *Wireline*:

British Valve and Actuator Association, C&S Facilities Management Limited, Cairndene Ltd, Calash Ltd, Ceragon Networks Ltd, Cooper Software, DDL Ltd, EMGS, Environ UK Limited, Exova UK Ltd, Flowline Specialists, Freyssinet Limited, gofastforward, Global TCC, Highlands and Islands Enterprise, Hunting Energy Services, Hybrid Air Vehicles Ltd, Ingen, J D Neuhaus, Matrix Risk Control, Mercer Street Technology, Metron Oil & Gas Ltd, MSE Consultants Ltd, NIKAM Consulting Limited, NOV FluidControl, OutperformSRM, Ritchie Ltd, SafeHouse Habitats, SengS Subsea Engineering Solutions, Sky-Futures, TestWells Ltd, The Boston Consulting Group, The Oil & Gas Innovation Centre, ThinkTank Maths Limited, Unique System UK Ltd and UniversalPegasus International.

*Membership officer, Kamila Nosal Moody, is committed to ensuring that Oil & Gas UK membership is carefully tailored to members' needs so please contact her on [knosalmood@oilandgasuk.co.uk](mailto:knosalmood@oilandgasuk.co.uk) with any queries.*

**MEET OUR 500TH MEMBER – SAFEHOUSE HABITATS (SCOTLAND) LTD**

SafeHouse Habitats (Scotland) Ltd, a global provider of specialist, engineered, secure habitats and enclosures for the oil and gas industry, has become the 500th company to join Oil & Gas UK.

Established in 2001 and headquartered in Dundee, the private equity-backed firm provides support, advice and equipment to clients to manage and control the risks of naked flame hot work (such as welding) and other ignition sources in classified hazardous areas. SafeHouse achieves this by providing pressurised enclosed habitats to enable clients to safely carry out hot work on a live production platform, negating the need for activity to be deferred until a scheduled shutdown.

The company has operations in the United States, Middle East, Far East and Australia. It uses a network of distributors to supply its services in Canada, Brazil, Malaysia, Indonesia and West Africa.

Gordon Mackay, chief executive officer of SafeHouse, comments:

“Oil & Gas UK provides a key forum to engage with our industry colleagues on a number of levels. An ongoing dialogue with operators and contractors allows us to continually develop our offering and respond to the market needs.”

“Our aim is to ensure that safety is of the highest standard which is why we developed the SafeHouse ‘Pathway to Maintenance Best Practice’ process. This provides guidance on good practice, outlining how best to deploy our equipment to mitigate risks in maintenance activities.

“As our business continues to grow it is also critical to build relationships with policy makers and other regulatory bodies,” continues Gordon. “Oil & Gas UK is the perfect platform to glean invaluable information about the latest health and safety guidance and productivity measures. This feeds into our product development plans for serving the industry.”

As a member of the UK upstream oil and gas industry’s supply chain, SafeHouse will now be represented on Oil & Gas UK’s Contractor Council, which offers members the chance to influence Oil & Gas UK’s priority policy areas. The Council also provides the unique opportunity for senior industry leaders to network and discuss issues pertinent to the sector.

**500+**  
members across the  
whole of the UK

Oil & Gas UK is the  
UK's largest trade body for the  
offshore oil and gas industry,  
with over 500 members



SafeHouse’s chief executive officer, Gordon Mackay (left) was presented with his membership certificate at PILOT Share Fair from Oil & Gas UK’s chief executive Malcolm Webb



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## EVENTS 2015

5 February  
**Pitfalls, Peaks and Progress  
– Exploration Conference**  
London

4 March  
**Technology Showcase**  
Aberdeen

*Jointly organised with the Industry Technology Facilitator*

29 April  
**The UK Oil and Gas  
Industry Safety Awards**  
Aberdeen

*Principal sponsor*



17 to 18 June  
**The Oil and Gas  
Industry Conference**  
Aberdeen

4 November  
**PILOT Share Fair**  
Aberdeen

5 November  
**Oil & Gas UK Awards**  
Aberdeen

## SEMINARS 2015



2 June  
**Aviation Seminar**  
Aberdeen

30 June  
**Supply Chain Seminar**  
Aberdeen

29 September  
**Security Seminar**  
Aberdeen

25 November  
**Environmental Seminar**  
Aberdeen

## BREAKFAST BRIEFINGS 2015



20 January  
**Risk Management**  
London

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### Aberdeen Breakfasts

24 February - Activity Survey 2015  
2 July  
6 October  
8 December

### London Breakfasts

20 January - Risk Management  
19 May  
22 September  
1 December

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## Maximising economic recovery

Trevor Garlick of BP and AMEC's John Pearson, Oil & Gas UK's co-chairs, are members of the interim panel advising on the implementation of Sir Ian Wood's recommendations for maximising economic recovery from the UK Continental Shelf (MER UK).

Here, they bring us up to date on the latest developments.

Over the last six months, there have been significant developments that point to major changes ahead for our industry. These are milestones marking the progress being made to translate Sir Ian Wood's far-reaching reforms to maximise economic recovery from the UK Continental Shelf (MER UK) into reality.

Sir Ian published his *Wood Report* in February 2014 and his central recommendation was that the industry and the UK Government (both the regulator and HM Treasury) must work together in a new tripartite arrangement to deliver MER UK. The industry is fully behind this, and representatives are now sitting on an interim panel to advise on the initial implementation of Sir Ian's proposals.

The government accepted all of Sir Ian's recommendations and has embraced the new tripartite approach. In summer 2014, it announced a new, arms-length, industry regulatory body called the Oil and Gas Authority (OGA). It will be based in Aberdeen with a significant presence in London. It will be responsible for more effective stewardship of our indigenous hydrocarbon resources in this mature phase of the industry's life cycle and Andy Samuel, currently managing director for European offshore operations at BG Group, has been appointed its first chief executive.

Andy is a well-known and highly respected figure in industry circles and will take the helm from January 2015 to shape the new organisation and guide it through its early, crucial stages. The OGA will be initially established as an Executive Agency (in April 2015) before evolving into a Government Company (GovCo) by summer 2016, subject to parliamentary process.

Recruitment is under way for the OGA's chair and the new regulator will be further strengthened by employing specialist individuals of high calibre to provide the necessary technical skills to boost expertise, expand capacities and sharpen capabilities across the board.

Establishing the legal framework to get the OGA up and running has been one of the implementation team's fundamental tasks.

The government has introduced clauses into the Infrastructure Bill to enshrine the principles of MER UK into law, providing for powers to raise a levy to fund the new regulator and also placing a duty on the energy secretary to publish, in consultation with industry, a strategy for delivering MER UK. While our industry will be expected to pay the bulk of the new regulator's annual costs, the government will contribute £15 million towards its funding over the initial five years, starting in 2016/2017. This Bill is currently making its way through Parliament and is expected to receive Royal Assent in spring 2015.

The Department of Energy & Climate Change (DECC) has also started work on a second phase of legislation to establish the OGA as a fully functioning regulatory body. It is preparing a bill for the first session of the new Parliament after the General Election in 2015. This will develop and define the OGA's objectives, duties, powers


and functions that will effectively implement Sir Ian's recommendations and ensure a smooth transition from DECC.

Clearly, it will be up to the government of the day to determine the post-election legislative programme but, recognising the need to avoid delay and move swiftly ahead with reform, DECC aims to have a first session bill ready by summer 2015.

In the spirit of the new tripartite approach, our industry is being consulted to help shape this legislation. A fast-track consultation was launched in November 2014 alongside publication of the *Wood Review Implementation Call for Evidence* and an invitation to participate in a suite of workshops on how best to implement the Wood Review's recommendations. Interested parties are encouraged to submit written evidence before the consultation closes on 31 December 2014.

Crucially, we are being invited to share our views on how the MER UK strategy should develop and the powers that the OGA will have, including sanctions available to the Authority to ensure the spirit of MER UK is adhered to by licence holders. Access to operator/joint venture partner meetings, data sharing, OGA funding, as well as creation of the authority as a GovCo, will also be addressed.

We are about to enter an era which will bring transformational change to our industry and the way we do business in the UK. Not only are we preparing to adopt a quite different approach to the economic regulation of our industry, one that will rely more heavily on collaboration in pursuit of the greater good, but we are also taking concerted action to address our current competitiveness challenges. Those challenges include: production efficiency, asset reliability, capital efficiency, business complexity, exploration attractiveness, resource availability, falling oil price and, increasingly, costs. The current fiscal regime, no longer considered to be fit for purpose, has also been subject to a review led by HM Treasury.

We now face a once in a generation opportunity to change the course of the industry and secure the long-term future of the UK offshore oil and gas sector for the benefit of the domestic economy, the hundreds of thousands of people that work in the industry and its world-class home-grown supply chain. The tripartite approach and effective collaboration across the sector, enrolling the OGA, HM Treasury and the industry in a shared vision, will be fundamental to success. Each and all of us have a vital part to play. 

*If you wish to submit evidence to the consultation (which closes on 31 December 2014) on the implementation of the Wood Review recommendations, you can do so at [www.gov.uk/government/groups/wood-review-implementation-team](http://www.gov.uk/government/groups/wood-review-implementation-team) or by email to [woodreviewimplementation@decc.gsi.gov.uk](mailto:woodreviewimplementation@decc.gsi.gov.uk).*





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Collaborative solutions can help manage the risks and reap the rewards of exploration activity.

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## Risk versus reward

With exploration activity on the UK Continental Shelf at an all-time low, increased investment in this area is crucial for the sector's future prosperity. Yet accessing capital for exploration has its challenges and requires collaborative solutions to manage the risks and reap the rewards.

*Wireline reports*

“The opportunities on the UK Continental Shelf (UKCS) are there,” asserts Alison Baker, partner at PwC. “Exploration and production (E&P) companies, big and small, are exploring new and mature assets but a risk-averse culture still prevails in the UK post the banking crisis in 2009 and this culture feeds through to investors and within E&P companies themselves.”

Over the last two years, less than 100 million barrels of oil equivalent (boe) were discovered, with only 15 exploration wells drilled in 2013 compared to 44 in 2008. In contrast, capital investment to develop new and brownfield projects was at a record high in 2013 at £14.4 billion.

For smaller E&P companies, which may not have the cash flow from operations

or have their activity (and therefore risk) concentrated in one region, difficulty in accessing finance for exploration has been identified as one of the key constraints contributing to the low levels of exploration activity. Yet, smaller and innovative explorers play a crucial role in the industry in finding new discoveries, often joining forces with larger companies to develop them. >



Managing and effectively communicating the risk/reward balance is vital to access capital for exploration, says Alison Baker of PwC. Lynn Calder of Lime Rock Partners explains that investors are looking for focused business plans and strategies. Image ©iStock.com/RapidEye

*“A risk-averse culture still prevails in the UK post the banking crisis in 2009 and this culture feeds through to investors and within exploration and production companies themselves... The risk/reward balance needs to be better managed and communicated.”*

Alison says: “Exploration by smaller E&P companies is traditionally financed through equity rather than through loan financing. The inherent risks in exploration activity mean there is nothing for a bank to use as collateral or security for a loan and small independent explorers are not deemed to be sufficiently secure to make a speculative lend to.”

However, following the financial crash in 2009, she notes that “equity values have remained depressed and equity providers are more risk aware and making more strategic decisions around their risk/reward appetite. They see risk in the UKCS’ maturity, the multiple changes in the fiscal landscape in the last ten years and in the basin’s rising costs.” The cost per exploration well on the UKCS has increased from an average of £20 million over the last ten years to around £70 million in 2013.

And the current downside pressure on oil prices is an additional constraint for explorers. The wise use of equity capital is therefore vital when there is pressure on both prices and costs.

Yet, exploration potential remains in all the main areas of the UKCS. As forecast in Oil & Gas UK’s *Economic Report 2014*, there are believed to be 15 to 24 billion boe still to recover from the UKCS, of which a significant three to nine billion boe are still to be found. The “risk/reward balance [therefore] needs to be better managed and communicated”, insists Alison.

### **Appetite for exploration**

Exploration activity is now mainly self-funded by larger companies with the cash flows from production operations and/or through investment from foreign national oil companies and sovereign wealth funds, which are seeking alternative sources of hydrocarbons to their own territories. “National oil companies such as KNOC, Sinopec and MOL Energy are entering the UKCS as part of this trend,” points out Alison.

*“Companies need to realise that collaboration will bring longer term benefits. The risks are reduced for everyone, the costs of exploration are reduced and the life of an asset can be extended.”*

MOL Energy UK is part of a state-owned Hungarian entity with ambitious plans for growth on the UKCS, self-funded through its parent company. New to the UK sector, it has already made a significant portfolio of investments in 2014. This includes acquisition of 14 licences in a deal with Wintershall, as well as shareholding interests from Premier Oil in six licences in the central North Sea, including a mix of existing and new production as well as operated and non-operated exploration opportunities in the Scott-Telford and Rochelle area.

The company has also bought a 20 per cent non-operated stake in the Catcher Area, which is targeted to produce oil in 2017, and submitted a successful bid for four exploration licences, as operator, with Azinor in the UK Government’s 28th offshore oil and gas licensing round.

Despite the decline in exploration in recent years, Chris Bird, MOL Energy UK’s managing director, is optimistic about the future of the UKCS with the rewards there for the taking. He believes that “the UK offers a low corporate risk profile and low political risk [and is] also optimistic that the UK Government is listening to industry’s views on fiscal incentives. The UKCS is the best entry point to establish offshore capacity and skill”.

He notes that a strong exploration portfolio is vital for MOL Energy UK to establish itself on the UKCS. “Previously, discoveries were much larger and an operator would stay on a platform for years, but production from assets is depleting and new discoveries are much smaller so it is important to grow and refill assets. Exploration is essential to keep existing infrastructure running so that companies can access the remaining resources.”

MOL Energy UK is currently developing its inventory list to assess its “best bets, based on size, geographic location, chance of success and quality of assets”.



## Collaboration is crucial

Any risks of course have to be effectively managed. Chris points out that in the current climate, now more than ever, it is important to have partners that can share the financial risk and bring technical and commercial skills to the relationship. He notes that for smaller E&P companies, like MOL Energy UK, better access to, and sharing of, infrastructure and equipment would further help in mitigating the risks attached to exploration, enabling new players to exploit resources around hubs and make exploration more attractive to investors.

He says: "Companies need to realise that collaboration will bring longer term benefits. The risks are reduced for everyone, the costs of exploration are reduced and the life of an asset can be extended."

He continues: "Our exploration investment will be based on three aspects: increasing production round existing hubs, working with the supply chain to reduce unit operating costs, and pushing out commissioning dates. And our strategy is to extend exploration through licences, acquisitions and joint ventures. We are looking for aligned partners to mitigate and spread risk and protect and grow hubs."

## Quality counts

Chris also strongly believes it takes talent to create value. "Talent will attract the right finance and partnerships."

Lynn Calder of Lime Rock Partners, a specialist private equity funder in the energy sector, agrees. She says: "Investors

*"The UK Continental Shelf, although not without risk, has a history of very successful investments. It has been a world-leading oil and gas basin and an incubator for world-class engineering and technology for decades now."*

look for focused business plans and strategies, a world-class management team capable of delivering it, a diversified and quantifiable risk profile, and a stable regulatory and fiscal regime. We work very closely with management teams to get to know their business and then structure a bespoke deal to fit their requirements and support their growth."

Lime Rock Partners, which has offices in Connecticut, Houston and London, manages \$4 billion of assets and offers equity capital of between \$25 million and \$150 million to both E&P and oilfield service companies worldwide. Lynn advises management teams to present investors with "a clear and well thought out business plan which projects meaningful, realistic and achievable growth".

She says: "Focus is important. We see a lot of propositions that are perhaps a little scattergun in their approach, for example, E&P teams targeting too many geographies. My advice would be to pick an area in which you have an identifiable track record and focus on how you can make money there again."

Alison adds: "If you have had previous success, then you need to communicate that effectively so investors can judge the risks."

Furthermore, she notes that "both foreign national oil companies and sovereign wealth funds can be fantastic sources of very significant funding for UK oil and gas companies, however, getting to the stage where they will commit funds is not something that will happen overnight."

"Identifying the organisations or funds you want to target and finding the right entry route into them is a vital first step. You then need to ensure you are having discussions with the appropriate decision makers. It's important to recognise that you will need to invest significant time to both attract and forge long lasting relationships. You may also need to look at your own organisation to ensure there is a strong cultural and strategic alignment."

"Some companies offer a certain amount of oil/gas at a discounted price to an investor for an advanced payment to cover exploration costs."

## Onwards and upwards

Ultimately, notes Lynn, "the UKCS, although not without risk, has a history of very successful investments. It has been a world-leading oil and gas basin and an incubator for world-class engineering and technology for decades now".

Chris concludes: "The key to success for exploration is to work with other operators and with the supply chain. In that way everyone can benefit. We have good quality resources here. It is an exciting time to invest in the UKCS." <sup>(W)</sup>

For more information, please visit [www.pwc.co.uk/oil-gas](http://www.pwc.co.uk/oil-gas), [www.lrparkers.com](http://www.lrparkers.com) and [www.molgroup.info](http://www.molgroup.info).

*Oil & Gas UK would like to thank the interviewees for their insight into the business challenges facing E&P companies that are seeking to attract new investment finance. There is a clear message that there needs to be a rebalance between risk and reward across the UKCS which will inevitably require recalibration of the fiscal regime. HM Treasury has led a public consultation on the fiscal regime to which Oil & Gas UK has submitted a detailed response, calling for swift action to reduce the fiscal burden on the UKCS.*



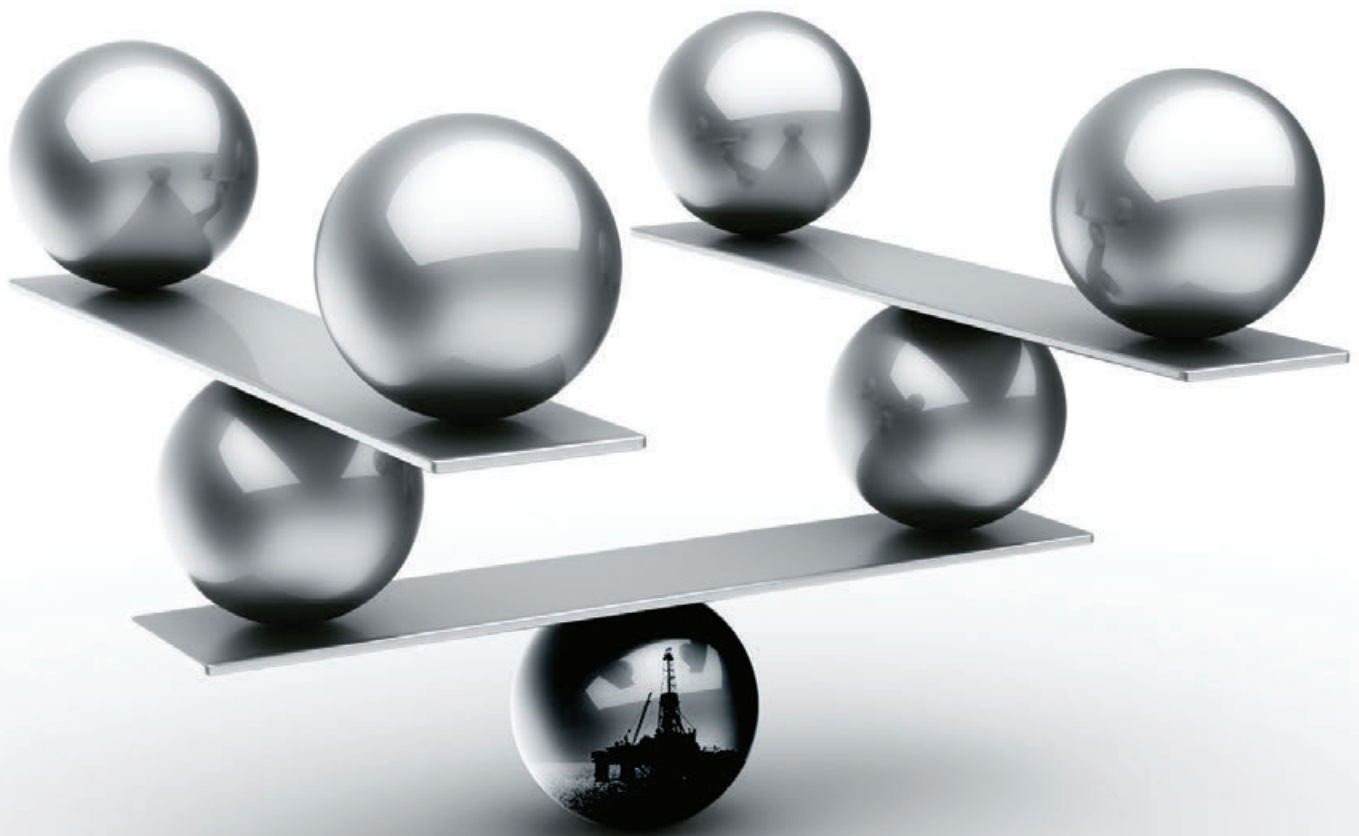
MOL Energy UK, part of a state-owned Hungarian entity, is new to the UK Continental Shelf (UKCS) in 2014. Managing director Chris Bird (left) believes a strong exploration portfolio is vital for MOL Energy UK to establish itself on the UKCS and that better access to, and sharing of, infrastructure and equipment would help in mitigating the risks attached to exploration

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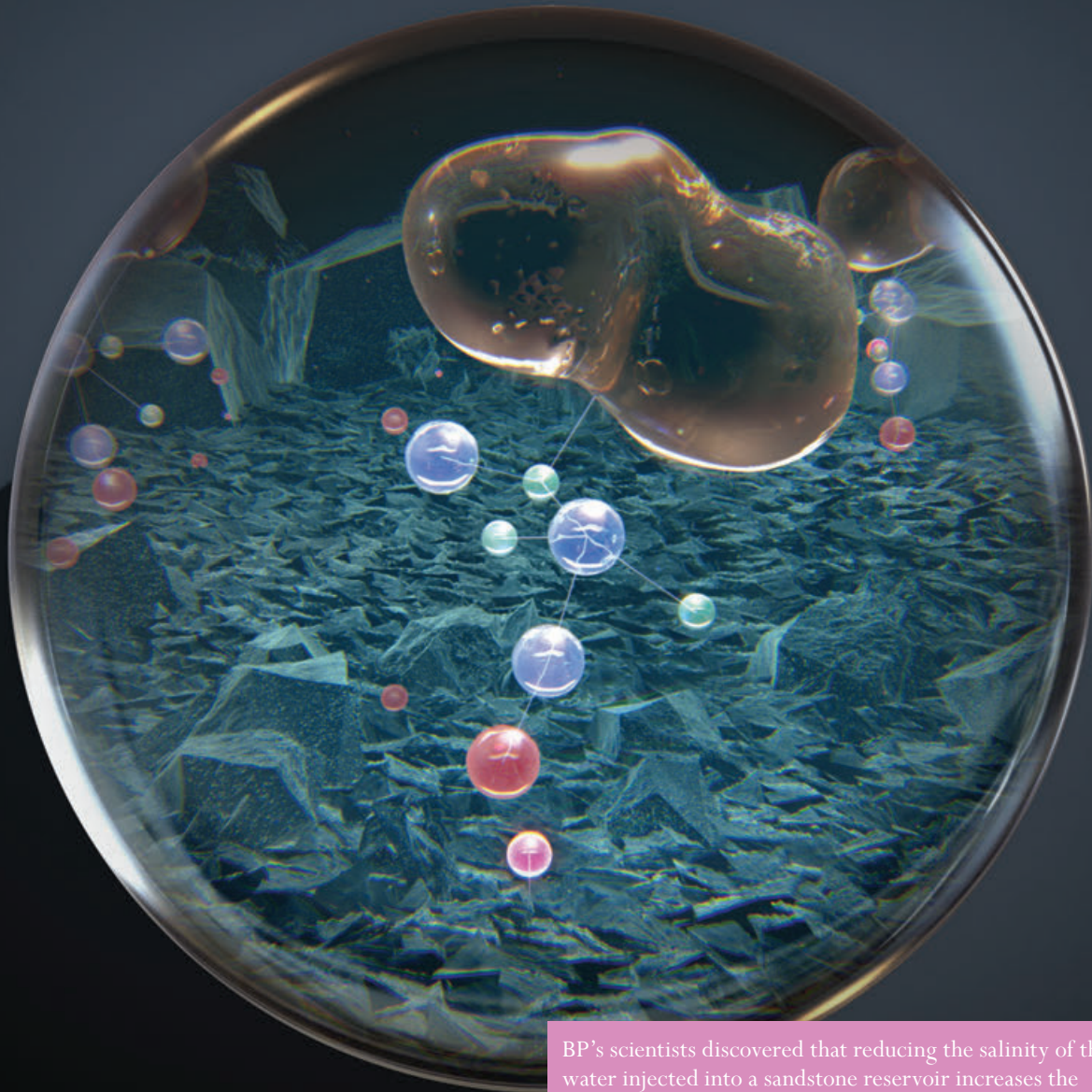
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BP's scientists discovered that reducing the salinity of the water injected into a sandstone reservoir increases the molecules of oil that are released. Pictured is an oil droplet tethered to a clay surface being released by BP's LoSal<sup>®</sup> enhanced oil recovery technique

## The promise of enhanced oil recovery

Cutting-edge technology continues to play a key role in the UK Continental Shelf's success story. *Wireline* catches up with Trevor Garlick of BP, who leads the PILOT Enhanced Oil Recovery (EOR) Work Group, to gain an insight into the promise of EOR.

“The enhanced oil recovery (EOR) technologies are out there, but they need to be either implemented at the start of a development or in some way retrofitted before it's too late. The longer you leave it, the harder it gets,” says Trevor Garlick, regional president of the North Sea business at BP, who is leading the

government-industry forum PILOT's EOR Work Group.

BP has had its own EOR programme since the 1940s. And no wonder, given the rewards. EOR techniques can increase the recovery of reserves from existing and new fields (see fact box overleaf), with the main focus on

improving two factors in oil production – pore scale displacement and reservoir sweep. In essence, any EOR technology involves modifying the injected water or gas to make it more effective in recovering the oil trapped in the rock pores or to improve the movement of the gas or water to ‘sweep’ more of the oil to the production well. >



## WHAT IS ENHANCED OIL RECOVERY?

Enhanced oil recovery (EOR) refers to technologies that are used to change the properties of the oil/rock interface to enable oil to flow from the reservoir rock in which it is trapped. Three methods of EOR are currently being used on the UK Continental Shelf (UKCS):

- **Gas injection** – miscible gases (those that dissolve in oil), such as natural gas, are injected into the reservoir to sweep oil that is not recovered by water injection into the producing wells. It is currently used on BP's Magnus field.
- **Low salinity water injection** – water with low levels of total dissolved solids can be injected into oil reservoirs to release more oil from the pore spaces of the reservoir rock. BP's Clair Ridge will see the world's first full-field deployment of LoSal<sup>®</sup> EOR.
- **Chemical injection** – is used where oil viscosity is significantly greater than water. Chemicals (such as polymers) and surfactants can be used to increase the viscosity of injected water to improve the reservoir sweep. A pilot polymer EOR project is currently under way at Chevron's Captain field.

### How important is EOR to maximise economic recovery of oil and gas?

Much of the remaining potential on the UKCS lies in existing oil and gas producing fields. The average ultimate field recovery rate is currently at 46 per cent and EOR has the potential to increase this to more than 50 per cent. The PILOT EOR Work Group estimates 500 million to 1.2 billion barrels could realistically be recovered through EOR schemes on the UKCS.

### How does EOR fit into the work of the Oil and Gas Technology Leadership Board and PILOT?

The EOR Work Group is run under the auspices of PILOT, the government-industry forum. Information from the work group will now be fed into the Technology Leadership Board's related technology delivery groups.



Water-alternating-gas enhanced oil recovery has been applied at the Magnus platform in the northern North Sea, BP's oldest asset on the UK Continental Shelf. The scheme has extended the field's life by 15 to 20 years, accounting for 40 per cent of its production

*"We've done some work on looking at the potential of applying more enhanced oil recovery on the UK Continental Shelf and I think we have surprised ourselves by finding that there's more potential than we were expecting."*

On the UK Continental Shelf (UKCS), BP has applied water-alternating-gas EOR (WAG-EOR) at the company's oldest field, Magnus, in the northern North Sea, extending its production life by 15 to 20 years by injecting miscible gas into the field.

Meanwhile, the world's first full-field, low salinity water injection EOR scheme, will be deployed as part of BP's new Clair Ridge project, west of Shetland. This is the second phase in the development of the Clair field, which was discovered back in 1977, enabling the field to operate into the 2050s.

"And we hope that our second new EOR deployment will be on the Schiehallion field, west of Shetland, where a new floating, production, storage and offloading (FPSO) vessel will include polymer injection facilities," adds Trevor.

The anticipated average ultimate recovery factor from fields on the UKCS is currently at 46 per cent, even after applying improved oil recovery (IOR) methods such as optimised water or gas injection. The challenge is to increase this percentage to more than 50 per cent through the activity of the PILOT EOR Work Group.

### Unlocking the potential

Through the PILOT programme, the potential of EOR across the UKCS has been assessed. Trevor says: “We’ve done some work on looking at the potential of applying more EOR on the UKCS and I think we have surprised ourselves by finding that there’s more potential than we were expecting. Much of this potential lies in reservoirs about which companies have intimate knowledge and so involves few risks and uncertainties compared to undiscovered reservoirs. This can help to make EOR more competitive on a cost basis.

“The work group has engaged with industry to screen UKCS fields for EOR potential and to share lessons learnt. We are now initiating some EOR projects both through the supply chain, in terms of producing retrofit kit, and through new studies on some fields. We’ve identified the top 20 opportunities in UKCS fields that could benefit from EOR.”

As part of the work, operators active in the northern North Sea cluster of fields are investigating the potential for applying low salinity water EOR technology to the Brent Group of sandstone reservoirs.

The operators are collaborating with the University of Liverpool in a joint industry project (JIP) to examine the area’s petrography with a view to sharing information.

The JIP is compiling information about mineral properties and pore scale characteristics to enable the data gathered to be analysed through coreflooding (a test to determine rock permeability and measure how effectively fluids flow through it) of the host Brent sandstone.

*“EOR requires a long-term view, but I strongly believe that it represents the future of our industry.”*

The study will summarise the geographic and stratigraphic (geological layering) distribution and variability of key rock mineralogical data across a large number of fields within the Brent Group of reservoirs. This will help develop an understanding of the core waterflood data within a wider geological context and help determine the degree to which that data can be extrapolated across the region to assess the potential for low salinity water EOR development.

### Joining forces

Trevor continues: “It’s hard to move from the lab to the field, but I believe it’s more about application now rather than a 30-year long innovation programme.

“EOR is perceived as being technically very challenging [and] too expensive. [But] I don’t think enough upfront work has been done – appraisal work to test whether or not these schemes could realise potential, and obviously if you don’t look, you don’t find. The PILOT work and some of the findings from Sir Ian Wood’s recent report are changing perceptions. They have raised awareness around the potential of EOR.”

Trevor believes “the biggest opportunity to move EOR from the lab to the field is through better industry collaboration. We need to share more technologies for evaluating and executing EOR projects and be more open about lessons learnt.

“We also need to look at the logistics of deploying EOR on multiple assets in the same geographic area, and consider innovative fiscal models to make EOR more attractive. EOR requires a long-term view, but I strongly believe that it represents the future of our industry.” <sup>W</sup>

*For more information, please contact Andy Leonard on [aleonard@oilandgasuk.co.uk](mailto:aleonard@oilandgasuk.co.uk).*



BP scientists have built a ‘pyramid of proof’ of the capability of its low salinity water enhanced oil recovery technology. This includes coreflood tests using actual reservoir samples to examine how much oil will be recovered and how it flows through the pores





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## Politician's Corner – Jo Swinson MP

Wireline asks Jo Swinson, Liberal Democrat MP, for her views on the industry and for an update on the Extractive Industries Transparency Initiative.

### Q: What are your thoughts on the economic contribution of the UK oil and gas industry?

A: Any Scot can have no doubt about the importance of this sector. As a minister in the Department for Business, Innovation & Skills, I have been able to get more involved with oil and gas companies and see how they contribute, not only to the UK economy but to the global economy.

The government recognises the benefits of maintaining this thriving industry and, in March 2013, we identified action that we can take forward together. The joint industrial strategy for the oil and gas sector forms an action plan for long-term growth. This will maximise opportunities on the UK Continental Shelf; promote growth in the supply chain, both domestically and internationally; and increase cooperation across industry, as well as between industry and government.

The industrial strategy has offered the industry investment confidence and security by setting out a clear path to exploiting the UK's remaining resources in what is an increasingly challenging and costly production environment. Eighteen months on, we have made good progress. For the first time, we have clearly mapped out the UK's supply chain capability and published the *Fabricators Directory*. The UK upstream oil and gas supply chain is worth £35 billion, of which 42 per cent is exports, valued at almost £15 billion in 2012.

We continue to work collaboratively across government and with industry to secure future decades of investment at home, access to high value opportunities abroad, and the production of oil and gas on and offshore.

But we cannot look only to the UK economy – Oil & Gas UK members operate right across the world. It is important that we work together and lead by example, helping developing countries to see the contribution that the extractives sector makes to economic growth and raising living standards.

And the key to this is greater transparency about the taxes that are paid by the oil and gas industry. Many of you already report the payments that you make to governments around the world and, from 1 January 2015, all large oil and gas companies in the UK will have to report these payments. And I am pleased to say that the UK is also moving closer towards being a full member of the Extractive Industries Transparency Initiative (EITI). This will help ordinary people see the full contribution you make to the economy – not just through taxes.

### Q: What is the Extractive Industries Transparency Initiative and why did the UK agree to sign up?

A: The EITI provides a global standard that countries sign up to so that oil, gas and mining companies publish what they pay and governments disclose what they receive from these companies. The figures are then reconciled by an independent administrator and published.

The EITI also puts these figures into context, publishing information about the extractives sector and the tax regime. In the UK, we are committed to using EITI to increase understanding of the extractives sector, to stimulate debate and ensure accountability.

I was delighted to be asked to be the UK's EITI champion and have been struck by the commitment of all the members of the multi-stakeholder group (MSG). Industry, civil society and government sit down together and I have been enormously impressed by the way this group works, striving to reach decisions by consensus. It is testament to their commitment and hard work that we gained candidacy status in October, just a year after we first met.

We hope to lead by example and encourage other countries to also sign up to this global initiative. Greater transparency will increase stability in developing countries and this should help when you are making investment decisions. This is why greater transparency is so crucial. Only when this information produced in the EITI report is made available will people be in a position to know whether they are really getting a good deal.

### Q: What will be expected from oil and gas companies?

A: Now we have been accepted as an EITI candidate country, we have 18 months to produce our first EITI report (April 2016) and 30 months to undergo validation to become a compliant country (April 2017).

The MSG has worked hard to align reporting requirements to mandatory reporting rules, using the same thresholds for reporting payments. The MSG has already agreed that the reports should cover Ring Fence Corporation Tax, the Supplementary Charge, Petroleum Revenue Tax and Licence Fees. We will be asking companies to complete a template setting out the payments made to government for upstream taxes on a 'cash paid' basis for the 2014 calendar year. This template should be returned to an independent administrator who will reconcile the figures to the receipts reported by government.

We expect to send out the templates by March 2015 and ask you to return the completed templates by July 2015 to help the independent administrator reconcile the information in time for the April 2016 deadline.

There is a great deal to do before we reach compliance and we cannot do it without your help. As EITI champion I am keen to continue to work with industry and civil society to ensure the UK becomes EITI compliant by April 2017. <sup>(W)</sup>

*Industry representatives on the MSG have developed guidance for companies who will be in the scope of EITI. This can be found, alongside other information at [http://bit.ly/UK\\_EITI](http://bit.ly/UK_EITI).*

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Having worked in oil and gas for 35 years, Christine McKay, geology and geophysics data and information manager at Maersk Oil, champions the value of and career opportunities available in data and information management. She worked on a software development project to set up the trailblazing national data repository for the Norwegian Government in the 1990s and in more recent times has been supporting Common Data Access Ltd to meet the UK industry's data management needs

## Beneath the surface

The chance arrival of a new teacher at her school set Christine McKay on a path into the oil and gas industry. Thirty-five years on, Maersk Oil's geology and geophysics data and information manager talks to *Wireline* about her passion for promoting the role of data management in maximising recovery of our indigenous oil and gas.

Christine McKay is determined that, as a profession, data management will soon enjoy the profile and status it merits.

"Data is absolutely central to decision making in our industry both for safety and commercial reasons," champions Christine, a geology and geophysics data and information manager at

Maersk Oil in Aberdeen. "Without it, it's like building a house without a solid foundation."

In effect, data management teams take care of all well and subsurface data that's generated by various sources, including seismic companies and other specialist vendors.

They validate all the material as it is loaded into databases, and ensure it is described correctly so geoscientists and other disciplines can have confidence in the information they use to make operational decisions.

"Despite all the technology and constant innovation in our sector, none of it will >



produce the right results unless the right information is used,” asserts Christine.

“In the modern industry, datasets can reach us in real-time, so as we are drilling a well, for example, geologists can assess the data and make real-time decisions. That’s a key reason why managing data consistently is so important – we now have the tools to make live operational changes.”

### Profile building

Christine is chair of Common Data Access (CDA) Limited’s council and a director on the board of this not-for-profit subsidiary of Oil & Gas UK, which provides data management services to the industry. In this capacity and along with many of her industry peers, Christine is working to establish a professional society for petroleum data managers, as well as create a new system of qualifications and competencies for them (see box-out right).

“CDA is where I see and feel tangible support for data and information management in our sector,” she enthuses. And at Maersk Oil, the data and information strategy carries the strapline

‘information is our business’. For Christine, this reflects its role at the heart of the organisation. That acknowledgment was a long way off when she first took steps into the sector in the early 1980s.

### Geophysics rocks

“At school I was always stronger in sciences and subjects like geography were of particular interest,” recalls Christine.

“But when I was doing my A-levels in physics, maths, geography and general studies, a new teacher arrived at our school [West Kirby Grammar School for girls, on the Wirral, Merseyside]. He was a professor of geophysics and he introduced the subject to the classroom. That is what really ignited my interest in the area. I had no idea what I wanted to do until then.”

She pursued the subject further and graduated in 1981 in physics and geophysics from the then University of Newcastle upon Tyne, at which time she recalls that the seismic acquisition and processing industry was on a high and jobs were relatively easy to find. She joined a US company called GSI and within a year was working in Holland

processing seismic data and working as part of a field crew. She adds: “I’d long held an ambition to live and work abroad, and the industry provided that opportunity for me very early in my career. I loved the work.”

She then went on to technical assistant roles for Britoil in Aberdeen and Shell in Lowestoft, and it was during those years that she began to focus on a career in data management.

“As a technical assistant you’re handling data all the time; finding, collating and presenting data to geoscientists for analysis, so you come to understand the real value of data. My sense of organisation and wanting to keep things in order also became a driver.”

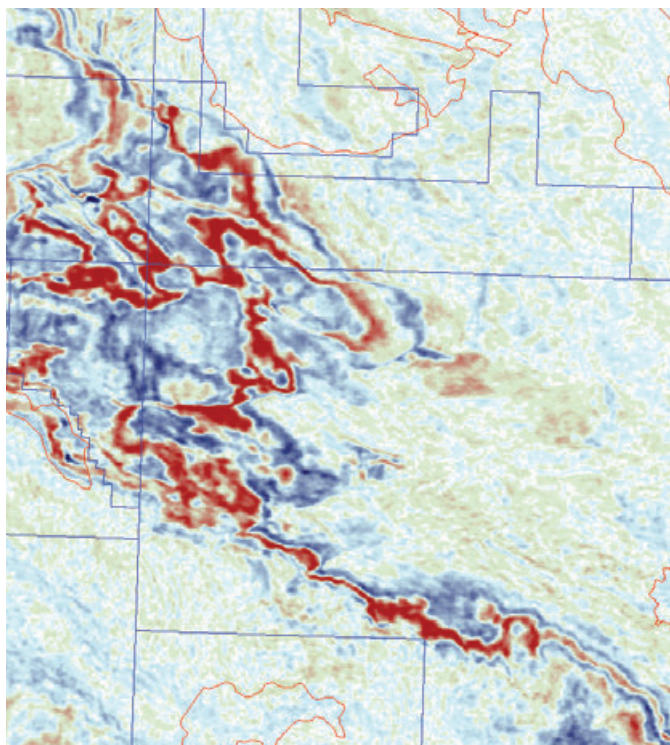
That career evolution took on fresh impetus when Christine seized an opportunity in 1990 to join the IT department at Shell in Aberdeen.

“It was my first position in data management, although it didn’t yet exist as an official job title,” she says. “It was still the days of mainframe computers, and certainly pre-internet, but that was where my thinking and dedication to data management as a professional discipline was formed.”

### Breaking ground

In 1994, Christine moved to Stavanger with IBM to work on a trailblazing software development project to set up the first

*“Despite all the technology and constant innovation in our sector, none of it will produce the right results unless the right information is used.”*



Christine McKay is leading a team of 13 at Maersk Oil and contributing to a new global data management strategy for the business. Pictured (left) is a timeslice from a Maersk Oil seismic survey on the UK Continental Shelf and Maersk Oil’s Gryphon floating, production, storage and offloading vessel (right)

## COMMON DATA ACCESS LTD

## EMPOWERING THE DATA MANAGER

Common Data Access (CDA) Limited is pressing ahead with a series of training and development initiatives to 'professionalise' and recognise the important role of data management for the long-term health of the industry.

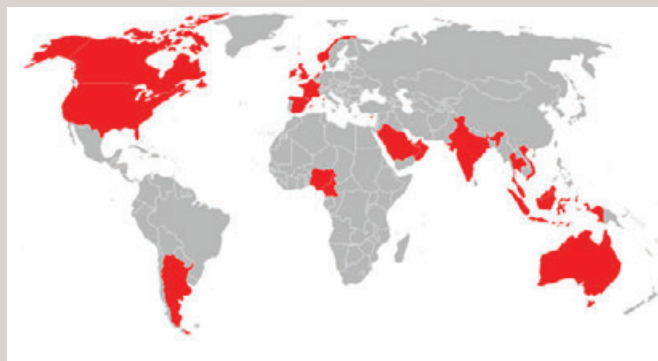
This includes plans to create a new professional society for data managers and develop a masters programme.

Meanwhile, last year, CDA launched the first Competency Management System (CMS) for geoscience data managers in the oil and gas industry.

Over 380 people have now registered worldwide. The portal, which is free to use, allows users to build a profile of their competencies in well and geophysical data management and plan personal development and career progression.

Christine McKay, chair of CDA's council and a director on its board, is pleased to see the industry starting to define its data management role requirements accordingly. In job adverts, for example, terminology from the CMS is being applied. "What we're looking to do through CDA is establish data management as a profession in its own right, in the same way as other industry specialisms," explains Christine.

*For more information, please contact [CMS@cdal.com](mailto:CMS@cdal.com)*



Over 380 people have registered to use the Competency Management System in 25 countries

***“We’re establishing the data management profession within the industry, we’re formalising an education agenda and it’s an exciting arena to operate in.”***

national data repository for the Norwegian Government – in essence, a single ‘bank’ of all well and seismic data.

She joined initially as a technical author and within a short time became a seismic data specialist on the project, capturing the requirements of the Norwegian industry for seismic data storage as well as writing specifications for software developers and testing programs. The role was a turning point in her career, broadening her knowledge and experience of the wider data management arena as she collaborated with IT-focused teams on an innovative project.

She notes that “other oil companies and national regulatory authorities around the world wanted to adopt this new technology, so business trips abroad became common place. Working life was exciting and it was the first time in my career that I felt I had become an expert”.

Christine continued to hone her skills before joining Maersk Oil in 2006 to head up a four-strong data team. She describes: “Until then, my career was

working as an individual contributor. This was my first shot at supervising a team.

“It was a small team of well and seismic data managers, although it’s now grown to 13 as more disciplines have been added, including library services, GIS data management and cartography [study and practice of making maps]. The transition from achieving things oneself to achieving things through others is a challenge many technical experts come to experience.”

She is also actively engaged with the global data management team at Maersk Oil, helping to draft a new data and information strategy for the global business.

This transition into a leadership role at Maersk Oil, she notes, is the most satisfying aspect of her career on the UK Continental Shelf (UKCS), which has included working on the seismic data storage element of the CDA repository and populating it with Maersk Oil operated surveys; sourcing and providing

new data to Maersk Oil’s geoscientists during their preparation for UKCS licence applications; and implementing Maersk Oil’s long-term programme to collate, clean up and apply governance to historical well log data.

“I’ve been fortunate with the support I’ve received at Maersk Oil, where there’s a formal leadership curriculum for all managers and the opportunity to benefit from a leadership coach,” adds Christine. “I’m really enjoying my role as a leader; I find it both fun and humbling.”

### Dynamic with data

Christine was thrilled to see multiple references to the importance of data and information in Sir Ian Wood’s report on maximising economic recovery. She now sees that as a blueprint to elevate the profile of data management within the industry.

And with her CDA hat on, she firmly believes it is becoming an ‘in vogue’ profession. “I see many positive changes taking place. We’re establishing the data management profession within the industry, we’re formalising an education agenda and it’s an exciting arena to operate in.” <sup>(w)</sup>

*For more information, please visit [www.maerskoil.com](http://www.maerskoil.com) and [www.cdal.com](http://www.cdal.com).*





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Javid Khan, of university spin-out company Holoxica, conceived the idea of creating three-dimensional holographic solutions to help companies present and verify complex, intricate or large-scale engineering designs 'in thin air'. Pictured is Baker Hughes' Blue Orca vessel

## Lighting the way

UK universities have long been a rich spawning ground for technologically innovative companies. *Wireline* spoke to two university spin-outs – Holoxica and PhotoSynergy Ltd – about their journeys in turning an idea into a commercial product and becoming part of the broad and burgeoning domestic upstream oil and gas supply chain.

**I**t was in a basement in Brussels around 2007 that Javid Khan first got the idea of creating three-dimensional (3D) holographic solutions to help companies present and verify complex, intricate or large-scale engineering designs 'in thin air'. With a background in microelectronic design and development engineering, he was

working at the European Commission at the time, responsible for identifying high-tech projects for funding. He saw that 3D was re-emerging as an applicable technology and realised he could take it further.

"I wasn't keen on conventional stereo 3D viewed through cinema-style glasses,"

he explains, and so he wanted to create actual moving 3D holographic images.

Unlike physical models, his vision was to create holographic images that are full-colour, created more rapidly from computer-aided design (CAD) models and encompassing animation to allow >

viewers to look inside and see them from different perspectives.

“I started doing some research and it all snowballed from there,” describes Javid. He decided the way forward was to join a PhD programme. He relocated to Scotland and joined an engineering doctorate programme that ran across several Scottish universities.

With funding in place through the programme, he spent a year studying at St Andrews and Heriot-Watt universities and then another three on technology development within his start-up company, Holoxica, based at the University of Edinburgh.

He explains: “The initial focus was on theoretical research – on algorithms, running data on supercomputers, graphics processing with lots of signal processing. We were then equipped

to make the basic components of our prototype display.” An early result of this work is the ability to make static 3D digital holograms to present engineering designs.

Holographic technology applies the physical principles of diffraction – or the ‘bending’ of light as it passes through structures that are similar in size to the light itself – to form 3D images. Holoxica’s first product, the digital hologram, takes the form of a photopolymer sheet made using a holographic printer. The 3D data for the ‘pop-out picture’ is embedded into the light-sensitive sheet by the printer. When a light is shone on it, the image emerges on the other side in 3D.

Javid notes that “although the approach required a lot of theoretical work initially, at some point, you need to translate that into tools and methods

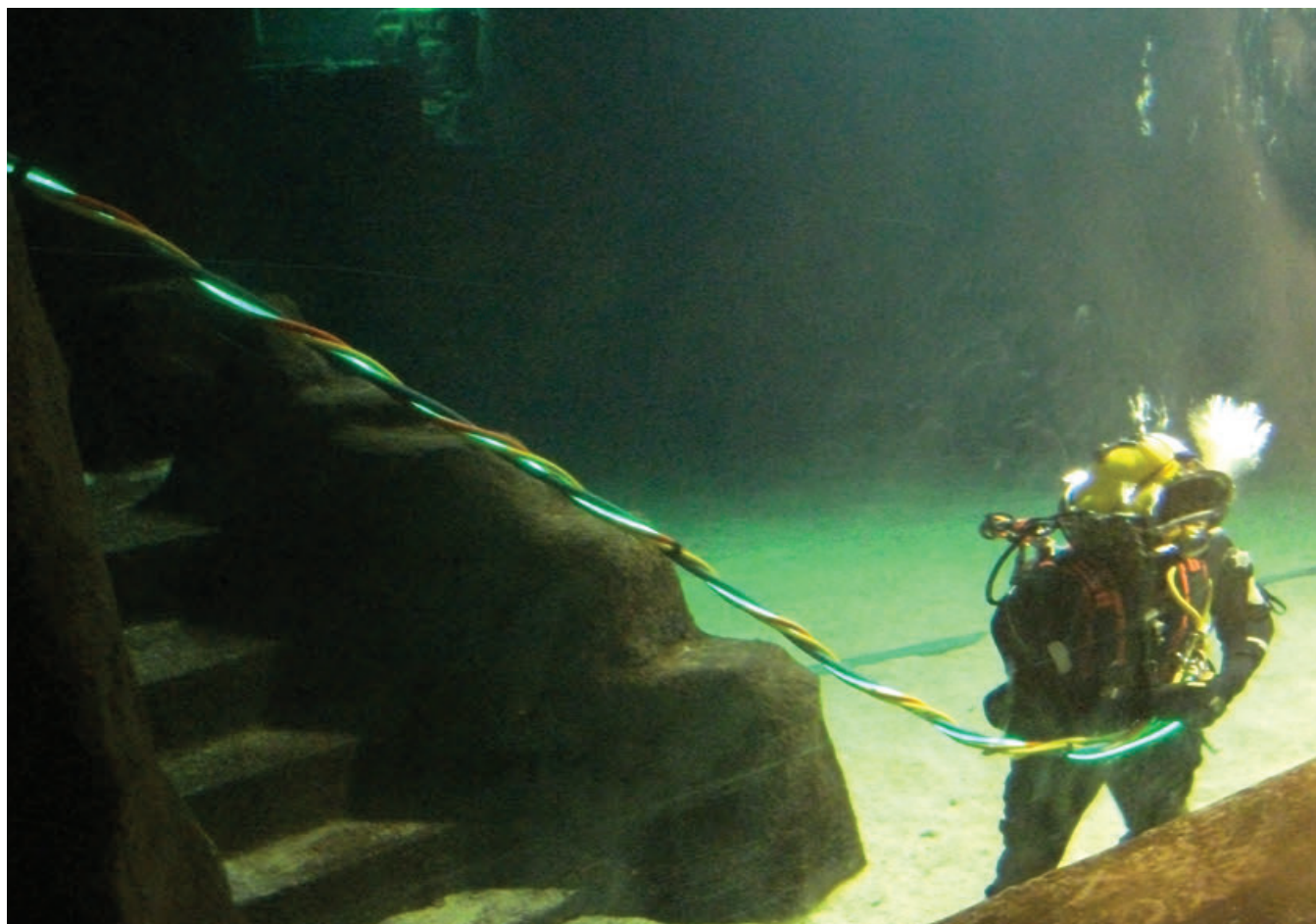
that can generate engineering products. You require technical excellence first and foremost, but you must be prepared to make that transition towards commercialisation. It’s about responding to customer needs. For larger designs, cost savings gained through holograms can be considerable – up to seven times that of a physical model.”

The technology can be used to present, in elaborate detail, oil and gas assets ranging from platforms to floating, production, storage and offloading (FPSO) vessels, or their individual component parts. The next step is to create motion video holographic 3D displays and this is still in the research phase.

### **From the classroom to the boardroom**

Don Walker, an experienced project engineer in optical-mechanical product design, has been helping to lead spin-out company PhotoSynergy Limited (PSL) from the University of St Andrews and he couldn’t agree more on the need to focus on the target market when taking academic research to the next level.

*“You require technical excellence first and foremost, but you must be prepared to make that transition towards commercialisation. It’s about responding to customer needs.”*



PhotoSynergy Limited, a spin-out company from the University of St Andrews, has launched LIGHTPATH, a side-emitting flexible fibre that projects a continuous and flexible line of light carrying no electrical power. It can guide deep water divers and remotely-operated vehicle (ROV) pilots through dark, often hazardous, conditions. Pictured are tests conducted at The Underwater Centre in Fort William



*“Getting a good team together with the right skills and experience is key. You have to keep a totally open approach and listen to everyone, because you never know which piece of information could make all the difference.”*

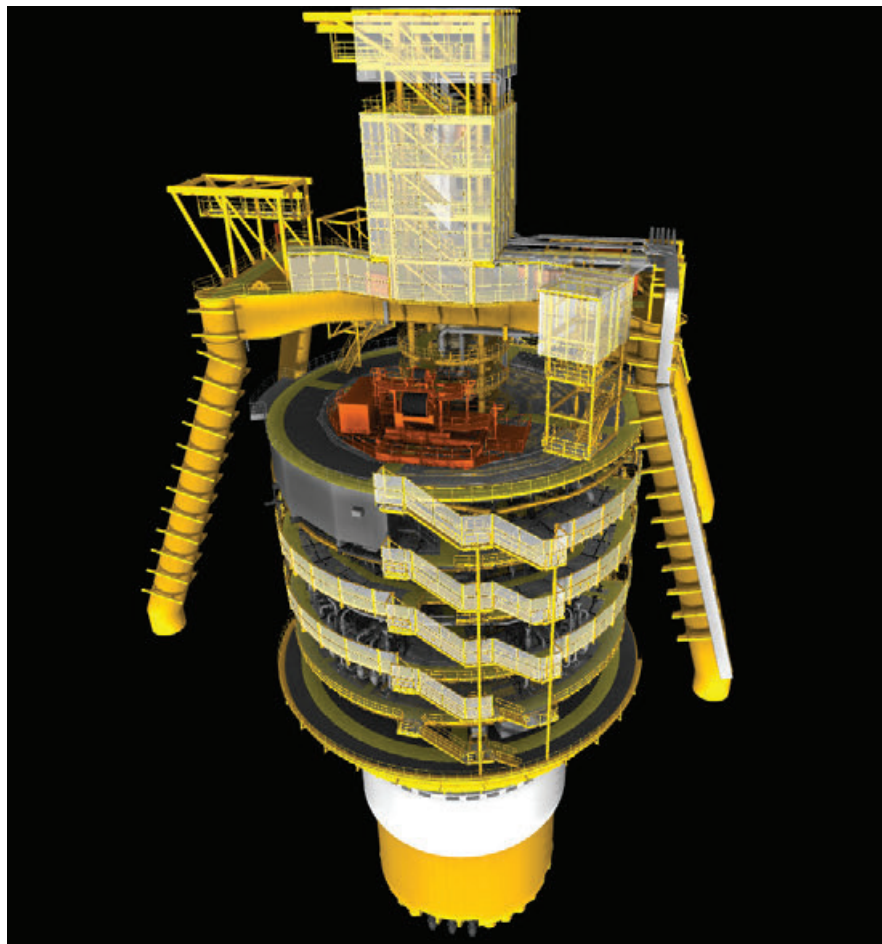
Previously working as head of research and development at Strand Lighting, with a background in developing cutting edge opto-electronic products, Don joined the University of St Andrews in the early 2000s as business development manager. His remit was to look at how the university could capitalise on the intellectual property generated by its academics and students. “We realised there was scope for a spin-out business and that is ultimately when PSL began,” explains Don.

PSL has launched a fibre illumination system called LIGHTPATH, which is a side-emitting flexible fibre that projects a continuous and flexible line of light carrying no electrical power. It combines second-generation, high-performance light emitting diodes (LED) with a unique coupling system for the optics to allow more light into the fibre. The fibre is also configured in such a way to make it both adaptable and strong, and one end of the system is sealed and the other is open so it can be ‘cut’ to any length required.

The LED rope is just five millimetres in diameter and is expected to stay alight for 50,000 hours/five years continuously. PSL has targeted the subsea sector to guide deep-water divers and remotely-operated vehicle (ROV) pilots through the dark, often hazardous, conditions – and in the process yield safety and productivity benefits.

### Diving in

The company has its origins in scientific research undertaken at the Photonics Innovation Centre at the University. The kernel of an idea for creating a fibre light technology had already been around for some time. And instead of using a laser-based solution as a light source – which was the initial



Holoxica's technology can be used to present 3D holograms of oil and gas assets ranging from platforms to floating, production, storage and offloading (FPSO) vessels, or their individual component parts, in company presentations or at events. Pictured is a SBM offshore drilling turret, courtesy of Extreme Exhibitions

thinking – the team recognised that second-generation LED technology was already developing a proven track record. It was also more cost-efficient and would offer a much longer operational life.

“We then looked at the market and saw subsea lighting as a key opportunity for us,” adds Don. His product design background complemented PSL chairman Professor Malcolm Dunn’s photonics expertise and physics-led engineer Graham Miller’s laser design and manufacturing experience.

“It was critical for us to get our concept accepted first,” notes Don. “There was no point in us taking it too far down the development route without understanding if it was something the industry could usefully deploy. “We did trials at various stages in the North Sea with industry players such as Boskalis Subsea, Bibby Offshore and Helix Well Ops, and that gave us encouragement to go on and refine the design based on their feedback.

Issues such as simplicity of design and using common parts wherever possible are important.

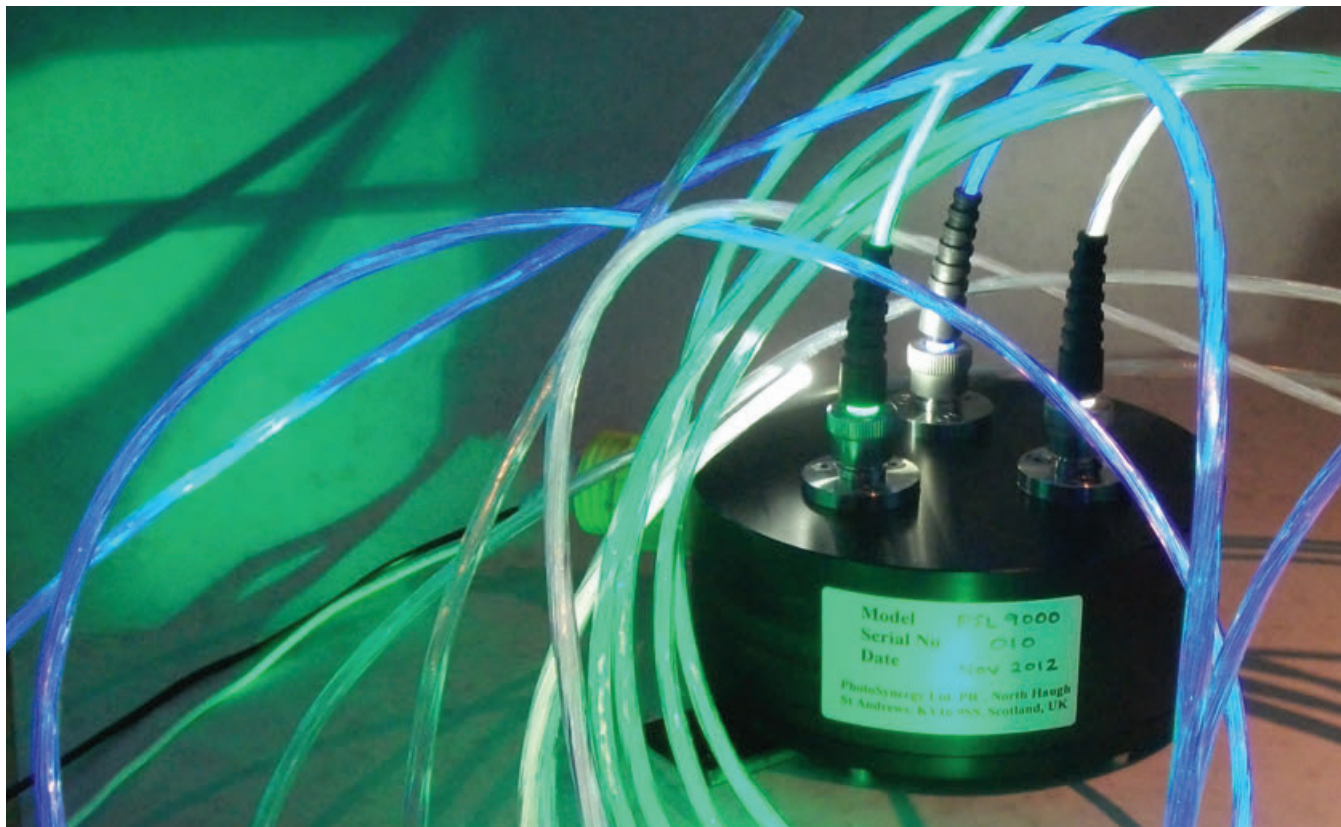
“We also took it to the diving community through our industry partners and The Underwater Centre in Fort William, and they also made some very useful design suggestions. That, again, helped us move along to where we are today. It means we’ve now created a unit that we believe is viable, practical and well-engineered, and has passed all the independent tests it’s been subjected to.”

### Making the grade

The common theme for PSL and Holoxica is close collaboration from the outset with their target markets to test their ideas and ensure they are producing solutions that will genuinely make a difference.

Holoxica engaged with Baker Hughes and Pressure Fab within the oil and gas industry. Javid’s holograms can be used to present engineering designs in situations ranging from customer >





Trials of PhotoSynergy Limited's LIGHTPATH technology have been conducted in the North Sea with feedback from industry informing its development. Pictured is the demonstrator SLS9000 three-way lighting system developed for Boskalis

presentations to trade shows and exhibitions, and he notes that "it's important to forge relationships to figure out the industries for your products".

He adds: "Because we have a background in science and engineering, we know how people in the oil and gas sector think. They value safety above all, but they also value timely delivery and high quality. You need to understand that – and be able to deliver on it – to earn trust. And, in turn, they understand that we have to spend time on design and technology."

### Clear vision

The entry of both companies into oil and gas illustrates the breadth of the industry's £35 billion UK-based supply chain, which today encompasses fledgling technological enterprises to global service companies.

For PSL, a key milestone was winning the 2014 Innovation for Safety Award at the Subsea UK Awards, resulting in enquiries from across the globe, including Australia, Thailand and South Africa.

Don believes the team that has developed around PSL is, and will

continue to be, crucial to its success. "Getting a good team together with the right skills and experience is key. You have to keep a totally open approach and listen to everyone, because you never know which piece of information could make all the difference.

"Also, we may be a small company but we have a big support network through the School of Physics and Astronomy, as well as the wider university, and because of this, we can offer a range of practical engineered and bespoke solutions."

PSL technology is now in use by several industry players. Subsea is the prime area of focus to highlight diving umbilicals and other subsea apparatus, as well as for guide path illumination in a diverse range of settings. Bibby Offshore, for example, uses different colour lights for each diver to eliminate confusion when the divers are working closely together in poor light conditions.

PSL is also looking to take its products into the wider industry arena, including topsides and marine application. The firm has also recently undertaken trials for its deep-water SLS7000, a version of LIGHTPATH that may help identify

the position and orientation of seabed operations down to 3,000 metres to reduce the time for installation, maintenance and repair by ROV pilots.

For Holoxica, the oil and gas sector is becoming an increasing area of focus after early market success in the medical and scientific sectors.

Inevitably, Javid explains there are challenges involved in taking the technology to market. "It's been a bit of a rollercoaster ride – it's exhilarating and terrifying at the same time," he says. "I'd advise any technical start-up to get some business acumen on board at an early stage."

But it helps that "the oil and gas industry has a reputation as an early adopter of advanced technology", he says. "It's not afraid of technology, it embraces it – and we're finding people very receptive to new ideas." <sup>(w)</sup>

*For more information, please visit [www.holoxica.com](http://www.holoxica.com) and [www.photosynergy.co.uk](http://www.photosynergy.co.uk).*



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## Celebrating our industry

The Oil & Gas UK Awards recognise the talented individuals and innovative companies that make up our industry. *Wireline* reports

“The annual Oil & Gas UK Awards, sponsored by Shell U.K Limited, were once again a stunning showcase of the industry’s brightest talent. Over 600 people turned out at the glittering awards ceremony in Aberdeen on 6 November 2014, making for a memorable night as the great and good gathered from across the industry to celebrate the winners’ achievements.

Keynote speaker Judith Hackitt CBE FREng, Chair of the Health and Safety Executive, gave the after-dinner speech while the sponsors of each category presented the winners with awards for investment in people, business innovation, mentoring, apprentice of the year, and graduate of the year (see overleaf for details of the winners).

Oil & Gas UK’s chief executive, Malcolm Webb, says: “I’m delighted to see our

industry come together for an evening to celebrate the extraordinary achievements of these businesses and individuals.

“The winners exemplify all that is remarkable about the industry – and I’m sure we will continue to follow their progress with great interest.” >





**Axis Well Technology**  
(pictured: Jim Anderson, CEO)

## AWARD FOR INVESTMENT IN PEOPLE, SPONSORED BY PETROTECHNICS

### SME

**Axis Well Technology** picked up this award in the SME category for its commitment to improving performance through the continuous development, growth and retention of its team of 160 employees and consultants. Alongside training and mentoring schemes, the company has operated a successful reward and recognition programme since 2001 where staff benefit from a profit-share bonus scheme. The company's commitment to training has contributed towards strong year-on-year sales growth with a 14 per cent increase in revenue in 2013.



**Bibby Offshore Limited**  
(pictured: David Forsyth,  
Group QHSE Director)

### Large Enterprise

**Bibby Offshore Limited** (BOL) won the Award for Investment in People in the large enterprise category. One of the company's core values is recognising its employees talents. Bibby's competency and training department, in turn, promotes staff development across the business. The BOL Academy was launched in 2011 to deliver training and development, which includes a graduate training scheme. Since its inception, 32 graduates have completed the scheme and become full-time employees. Meanwhile, the company's engineer conversion programme, implemented in 2013, looks to bridge the skills gap in the subsea engineer sector by supporting, training and mentoring candidates.

## AWARD FOR BUSINESS INNOVATION, SPONSORED BY BP

### SME

In the SME category, **Meta** scooped the Award for Business Innovation. Meta's products aim to ensure isolation integrity across the well's life cycle. Its product range is underpinned by Metalmorphology – a unique technology that shapes metal downhole using hydraulic fluid pressure to produce a metal-to-metal isolation that conforms and creates a seal. Meta has created a new marketplace for the technology and has secured over 40 patents for its techniques, making a potential saving for one client of around \$4 million and helping another to triple production on its most productive well. One operator has described Meta's products as "crucial" in enabling the company to plan for well integrity over the field's lifetime.



**Meta**  
(pictured: Kevin Stewart, CEO)

### Large Enterprise

The Award for Business Innovation in the large enterprise category went to **EnQuest**. The company is focused on drawing value from undeveloped oil fields and ageing assets through significant financial investment, technical expertise and innovative thinking. At the heart of its strategy is the Thistle Late Life Extension (LLX) project, designed to recover a further 35 million barrels of oil from the Thistle and Deveron fields and extend production life to 2025 and beyond. By simplifying plant equipment layout and upgrading obsolete systems, EnQuest is reinvigorating one of the North Sea's oldest platforms and ensuring it continues to produce for many years to come. LLX is now recognised by industry as a proven template for successfully extending the life of ageing assets.



**EnQuest**  
(pictured: John Cowie, Area  
Manager, Northern North Sea)



## AWARD WINNERS 2014



**Alan Muirhead,**  
Lead Field Development  
Engineer, Ingen Ideas

### **AWARD FOR MENTOR OF THE YEAR, SPONSORED BY CHEVRON**

**Alan Muirhead**, lead field development engineer at Ingen Ideas picked up the Award for Mentor of the Year. He was the first person to complete Ingen's learning and development programme in 2010 when he achieved chartership status from the Institution of Chemical Engineers (IChemE). Since then, he has mentored new graduates, as well as school and summer placement students, which involves preparing placement study work scopes and supporting and reviewing work. He has also been heavily involved in developing the company's chartership scheme which, thanks to his input, achieved Approved Credited Training scheme recognition, as well as Bronze Partnership status, from IChemE. All graduates who have received chartership since Alan's involvement have remained with the company and are mentoring others.



**Marnie Toal,**  
Apprentice Subsea  
Technician, Proserv

### **AWARD FOR APPRENTICE OF THE YEAR, SPONSORED BY THE ENGINEERING CONSTRUCTION INDUSTRY TRAINING BOARD**

The Award for Apprentice of the Year went to **Marnie Toal**, Proserv's apprentice subsea technician. Having joined Proserv a year ago, Marnie is enthusiastic about taking on extra responsibility as well as identifying opportunities to improve work processes. During her first assignment, Marnie devised a step-by-step proposal to simplify a process used during a stripping and flushing rig job. On a recent hose integrity management project, which involved testing around 600 hoses over a six-month period, she successfully met all safety requirements whilst achieving significant cost efficiencies. Proserv recognised Marnie's outstanding contribution by implementing her project improvements as standard company practice and by including a new hose integrity management module in the apprentice training programme.



**Barry Mitchell,**  
Graduate Electrical Engineer,  
Wood Group PSN

### **AWARD FOR GRADUATE OF THE YEAR SPONSORED BY UNIVERSITY OF ABERDEEN**

**Barry Mitchell**, graduate electrical engineer at Wood Group PSN won the Award for Graduate of the Year. Barry gained his masters in electrical and electronic engineering at Robert Gordon University, where he was awarded the Best Performance Prize after his second year and the BP Prize for Best Overall Achievement following his graduation. In his current role at Wood Group PSN, Barry is commended as a highly competent young engineer with a bright future ahead of him, showing unrivalled professionalism, dedication and commitment to deliver fit-for-purpose engineering solutions for the company's clients.



For more information on the awards and for details on all the finalists, visit [www.oilandgasuk.co.uk/events/awards.cfm](http://www.oilandgasuk.co.uk/events/awards.cfm).

And also don't forget that the UK Oil and Gas Industry Safety Awards are opening for nominations on 7 January 2015. For more information, visit [www.oilandgasuk.co.uk/safetyawards](http://www.oilandgasuk.co.uk/safetyawards).





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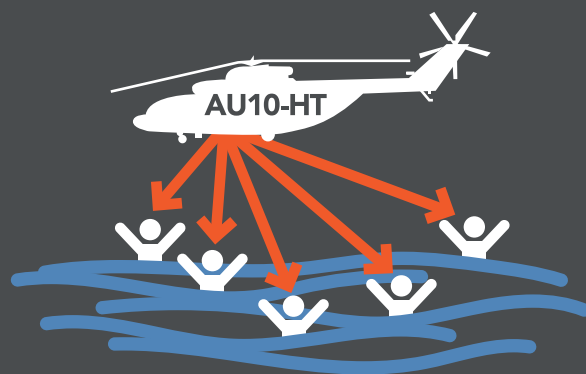
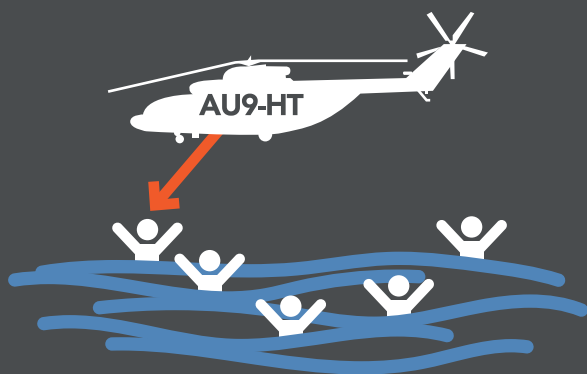


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