

# SPE Review London

January 2019

The official e-magazine of the Society of Petroleum Engineers' London branch

## SHALE GAS POTENTIAL

Is it time to support shale gas production to meet the UK's energy demands?

**PLUS+**

Letter from the Chair

Young Professionals at BCG



BEHIND THE SCENES

MEET THE BOARD

EVENTS

JOBS

# SPE Review London

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## ABOUT US

The Society of Petroleum Engineers (SPE) is a not-for-profit professional association whose members are engaged in energy resources, development and production. SPE serves more than 143,000 members in 141 countries worldwide. SPE is a key resource for technical knowledge related to the oil and gas exploration and production industry and provides services through its global events, publications, events, training courses and online resources at [www.spe.org](http://www.spe.org). SPE London section publishes SPE Review London, an online newsletter, 10 times a year, which is digitally sent to its 3000+ members. If you have read this issue and would like to join the SPE and receive your own copy of SPE Review London, as well as many other benefits – or you know a friend or colleague who would like to join – please visit [www.spe.org](http://www.spe.org) for an application form.

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Preston New Road Development

Photo credit: Cuadrilla

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# Behind the Scenes: SPE Review Editorial Board



## Jonathan Ovens

After graduating from Cambridge University with a Ph.D in Physics, Jonathan joined Shell in 1986. Reservoir Engineer – hydraulic fracturing, pressure transient analysis and reservoir simulation.

1997 - 2012: independent consultant: North Sea, North Africa and the Middle East.

Experience: Exploration and Development planning to Reserves Evaluation.

2013: Senior Reservoir Engineer at JX Nippon E&P (UK) Ltd.

2009 and 2015 served with SPE Europec Technical Committee.

Member of the SPE London Board.

## Josh Beinke

Graduated from University of Adelaide in 2008 with a Petroleum Engineering degree. Worked various roles with Chevron, Origin Energy and Santos, including as a Production Engineer on the Gorgon Field during First Gas. Following move to Europe in 2016, consulted on European and African assets (specialising in data room and field development advisory) before current position working in Amsterdam as a Production/Exploitation Engineer with Vermilion Energy.



## Ffion Llwyd-Jones

Editor and business writer, with 15+ years experience in North America/ UK.

Editor for several trade and consumer magazines (print and/online).

Provides industry-related case studies, and detailed, research-driven B2B Designer reports and technical white papers.

Accomplished photographer, and videographer.

Educated in Canada, and in the UK, with BA (Hons) from The Open University.

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## Letter from the SPE London Chair



Dear colleagues and friends!

Happy New Year 2019 to all of you and welcome to our January issue.

In this message I would like to bring your attention to one of the SPE's most popular programmes - the SPE Distinguished Lecturers programme. Each season, 30 to 35 experts from the oil and gas industry worldwide are selected by SPE International to share their knowledge on the latest technologies and trends with SPE members.

Distinguished lectures (DLs) are volunteers and are making a tremendous effort travelling around the world, providing outstanding technical information to SPE members. To have London as part of their tour, the SPE London's board is collaborating with other Regions in selecting those DLs we would like to invite. You can refer to **our website (and page 7 in this issue)** to see the list of lecturers scheduled to present in 2019. If you then decide to attend one of our Dinner meetings featuring a Distinguished lecturer, we would really appreciate if you could help us and our DLs to focus and improve the relevance of their presentations. To do so, you can fill out and submit the Section Attendees' Tour Evaluation **online form** for every DL visit. Your feedback will also help London Section in winning the 2018–2019 Distinguished Lecturer Evaluation Contest and receive the Acknowledgment on SPE.org.

There is also another acknowledgement we encourage you to share. SPE International gives you a chance to recognise your fellow SPE members for their technical contributions, professional excellence, career achievement, service to colleagues, industry leadership, and public service. You can read more about the SPE Regional and International Awards nominations on the **SPE International website**.



Locally, in London, we would also like to recognise individuals who have gone the extra mile in their support for SPE London Section. If you think of someone who deserves to be nominated for our Local Section Awards, please let us know by writing to **SPELondon@spemail.org**. We will then review all submissions, identify the appropriate awards categories and announce the winners at our Annual SPE London Awards in October 2019.

Thank you all in advance.

Kind regards,

Dr Olga Bradulina  
SPE Chairperson

SPE London Section Chair Olga Bradulina receives the Outstanding Service award from SPE President Darcy Spady on behalf of Dr. Renu Gupta during the SPE London Annual Conference, October 2018.

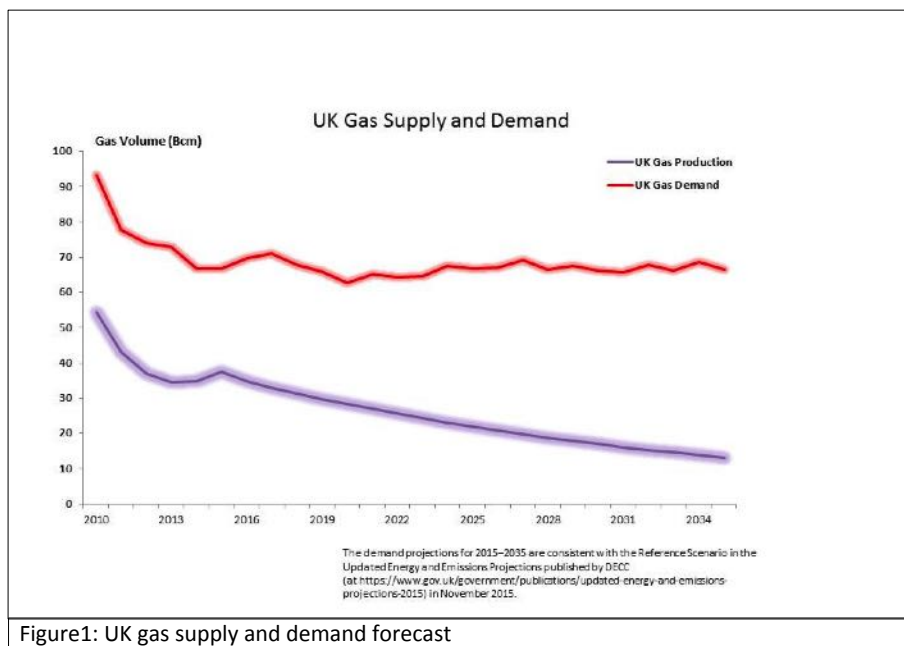


# Unlocking shale gas potential

Laura Hughes, Commercial Projects & Operations Director at Cuadrilla, discusses the potential of shale gas development in the UK and the work at Preston New Road to unlock a new energy source for the country.

The UK needs gas. The vast majority of energy forecasts we look at, however optimistic for energy reduction and renewables, indicate that in 2040 we'll still be consuming natural gas at the same levels as we do today.

Over 50% of our gas is currently imported from overseas and this shows no sign of abating, especially with production from the North Sea fast declining (see Figure 1). Renewables, while an important and growing share of the electricity market, are heavily dependent on local climatic conditions and around a third of the UK's electricity is still generated from gas, which is available 24/7.



With over 80% of homes reliant on gas for heating an awful lot would have to change, very quickly, if that gas demand is going to be reduced significantly.

As a country, we are also vulnerable in terms of gas supply. In early 2018 the 'Beast from the East' brought this into stark contrast. National Grid issued its first 'gas supply deficit' warning for eight years – gas demand was exceeded by gas supply. At one stage, gas prices rose to over six times the normal price.

That is why Cuadrilla believe exploring and understanding the potential of the UK's onshore shale gas resources is of critical importance and could help improve our energy security and reduce the country's exposure to price vulnerability.

There is also the potential of significant positive local impact. The shale gas industry could provide Lancashire, where the company is headquartered, with a potentially significant source of direct new employment, significant supply chain opportunities for local business, and further economic benefits through funds to support community, social and economic priorities. In the past two years of exploration operations, Cuadrilla has already spent over £11million in the local economy and created over 60 jobs.

The British Geological Survey gives a mid-case estimate of over 1,300 trillion cubic feet (tcf) "gas resource" in the Bowland shale. Cuadrilla estimates that at least 200tcf of natural gas is trapped in the shale rock in the Lancashire Bowland Shale Gas exploration licence area (Petroleum Exploration and Development Licence 165). Compared with the UK's demand of around 3tcf per year, even with very modest recovery factors, there is the potential for several decades' worth of gas supply. In addition to magnitude of the resource, the Bowland shale looks suitable for development for a number of other reasons: the shale thickness (>1km)



## TECHNICAL FEATURE

enables multiple horizontal wells at different strata, lending itself to efficient development through multiple wells per surface site and the rock has been demonstrated to be well suited to hydraulic fracturing.

In early 2018, Cuadrilla completed its shale rock sampling at Preston New Road, recovering some 375 feet of core samples from the Upper and Lower Bowland shales. In addition, a very comprehensive series of wireline logs were completed, recording data across the entire Bowland shale section. This represents the most comprehensive data set recovered to date from any shale well drilled in the UK and the quality of the data is excellent.



Figure2: Preston New Road facility

Following analysis, Cuadrilla drilled the UK's first two horizontal wells into shale rock. The first horizontal well was completed in April 2018 through the Lower Bowland shale rock at approximately 2,300m below surface and extends laterally for some 800m. The second horizontal shale gas well was completed in July 2018 and was drilled through the Upper Bowland shale at an approximate depth of 2,100m below the surface, extending laterally for some 750 metres through the shale. During the summer, the company then became the first operator in the UK, under a new regulatory regime, to receive Hydraulic Fracturing Consent for the two wells, and hydraulic fracturing commenced in October 2018.

Hydraulic fracturing is the process of using water injection to induce micro-cracks in the shale rock, to connect the entrained gas in the formation to the wellbore, to allow the gas to flow. The fracturing has been monitored through state-of-the-art micro seismic "listening" system which detects and plots the response from the rock and allows the fracturing response to be mapped. The micro-seismic system is also part of a "traffic light system" whereby if activity close to the well exceeds a level of 0.5 on the local Richter Scale, pumping operations are paused to monitor the rock response. This is a vital part of the exploration objectives – to understand how fracturing in the Bowland Shale occurs, but is considered to be very conservative relative to other local industry and international shale operations.

The ultimate purpose of our exploration is to establish exactly how much gas can be produced from each well. In recent weeks we have repeatedly seen signs of natural gas flow as we completed the fracturing operations. This early gas flow is a hugely encouraging signal.

We are now entering a very important stage of the operation and will be testing the gas from the well in early 2019 to be able to further assess the commercial viability of the resource.

**There is a clear imperative to assess and subsequently utilise domestic gas resource to support UK demand and contribute to economic growth. Cuadrilla is on the cusp of demonstrating the potential for shale gas production in Lancashire and is proud to be at the forefront of a nascent industry at such an exciting time.**



Laura Hughes has 18 years of technical and commercial experience in the oil & gas industry. She has a background in chemical and well engineering, complemented by an MBA, and a track record of delivery in overseas operating and corporate headquarter environments. Having held roles in East, North & West Africa, South America and the UK, she has shaped several challenging upstream & midstream projects.

# SPE London Evening programme Spring 2019

Join us for the London Section evening meetings! In addition to lectures by well-renowned industry professionals, including Distinguished Lecturers, you can enjoy drinks and a networking buffet.

Be sure to look out for email alerts with registration and ticket details, or *check out the SPE London website events page*.

We look forward to seeing you at the next event!



David Hill and Tim Lines at an evening meeting

## Schedule: January - May 2019

### 29 January 2019

*After Dinner Topic/Speaker: **Global Climate Change Wars and Fossil Energy; Current and Future Realities***  
George Stosur, Distinguished Lecturer 2018-19

*Before Dinner Topic/Speaker: **Fooled by Randomness: Improving Decision Making With Limited Data***  
Jim Gouveia, Distinguished Lecturer, 2016-17

### 26 February 2019

*After Dinner Topic/Speaker: **Big Data Analytics: What Can It Do For Petroleum Engineers And Geoscientists?***  
Srikanta Mishra, Distinguished Lecturer

*Before Dinner Topic/Speaker: **Deep QI – A machine learning approach to quantitation interpretation***  
(Speaker To be Determined)

### 26 March 2019

*After Dinner Topic/Speaker: **Using fractals to determine a reservoir's hydrocarbon distribution***  
Steve Cuddy, Distinguished Lecturer, Baker Hughes

*Before Dinner Topic/Speaker: **How to be a Petroleum Detective***  
Brian Moffatt, CEO, Petrophase

### 30 April 2019

*Before Dinner Topic/Speaker: **'Near Real-Time Updating of Production Forecasting'. Machine learning/data driven modelling/production forecasting***

Martha Stunell, Resoptima

### 28 May 2019

*After Dinner Topic/Speaker: **Creating a Worldwide Unconventional Revolution Through a Technically Driven Strategy***

Dr Basak Kurtoglu, Distinguished Lecturer, 2016-17 and Quantum Partners



## SPE Young Professionals learn & network at BCG



In October 2018, Boston Consulting Group (BCG) hosted SPE Young Professional London at its headquarters in London for the fourth consecutive year.

The event focused on Management Consulting in Oil & Gas and, especially, the areas where BCG operates within the industry.

To shape the understanding of Young Professionals coming from technical backgrounds, the speakers began with a short overview of current and past projects of the company within the energy area.

Senior consultants and newcomers shared their experience of daily operations and collaborations with clients. This was followed with a networking break where young professionals had an opportunity to ask questions and share their thoughts over a drink.

After a short break, attendees were invited to join a panel discussion with BCG's representatives in various roles. Starting with a concise introduction, each of the six panellists shared their career story and the challenges faced throughout.

The success of the event was reflected in the Q&A session that exceeded the originally planned time twofold. The session was then concluded with a presentation on the recruitment process for fresh graduates and experienced professionals.

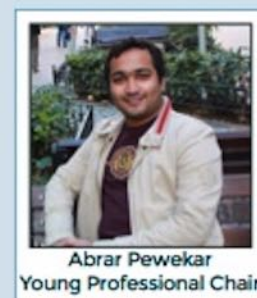
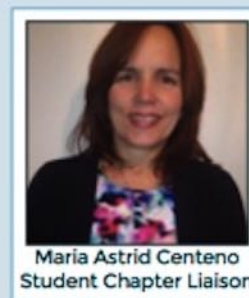
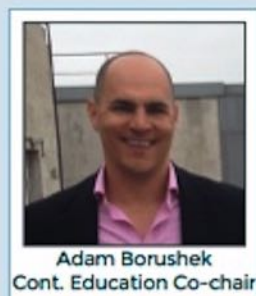
At the end of the event, BCG representatives and YPs stayed for the networking, with an opportunity to ask questions and share thoughts on the topics covered.

Many thanks to the BCG Team!



## Meet the SPE London Board

SPE is a non-profit professional society with 164,000 members in 143 countries. The SPE London Section, with average 2000 members and seven associated student chapters, is an active section with an aim to connect, engage and promote exchange of knowledge within London energy community of technical and commercial professionals. The SPE London Board is the policy-making and governing body consisting of volunteers who devote their time to oversee many of SPE London's administrative and operating responsibilities.



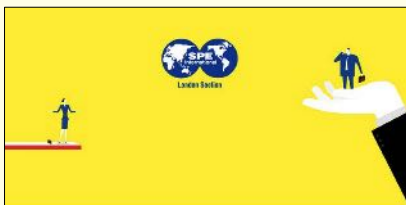
# What's happening: Events, videos and jobs

## Mark the dates! SPE events 2019 - and see page 7 for local London events

05-07 March	SPE/IADC International Drilling Conference and Exhibition	The Hague, The Netherlands
18-22 March	SPE Forum: Shaping the Next Wave in Well Plugging & Abandonment	The Netherlands
20-21 March	SPE Workshop: Innovative Arctic Technologies	Harstad, Norway
09-10 April	IADC/SPE Managed Pressure Drilling and Underbalanced Operations Conference and Exhibition	The Hague, The Netherlands
14 May	SPE Norway One Day Seminar	Bergen, Norway
03-06 June	SPE Europec featured at 81st EAGE Conference and Exhibition	London, UK

## Women in Energy (WiE)

WiE hosts events throughout the year, including the annual one-day seminar, all focused on gender balance in the oil and gas industry.



Companies such as BP, Shell, Total and Schlumberger sponsor WIE events, while industry partners/collaborators include UK-based UK Powerful Women and SPE WIE South Central Europe Region.

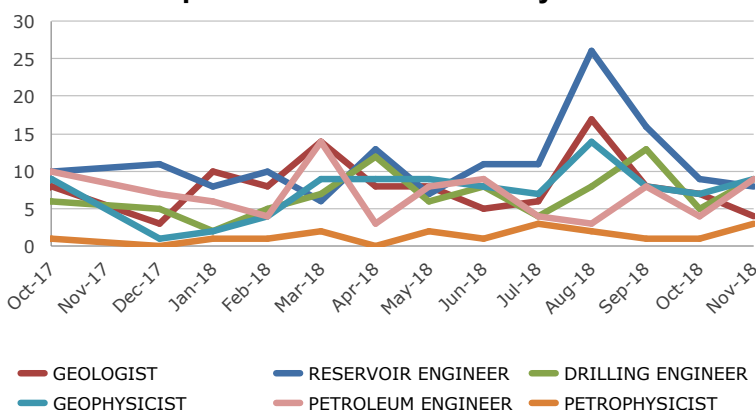
The annual WiE conference attracts a wide audience with high-profile speakers including senior VPs from Total, VPs from BP, CEO Oil and Gas UK, Shell UK chair .

Here's a taster video of events and opportunities with SPE WiE: [Two-minute SPE WiE video](#)

## Live Jobs (at print)

### PETROLEUM SUBSURFACE JOBS - EUROPE

Europe Subsurface Jobs By Month



#### Selected Live Jobs at Print

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[London, United Kingdom](#)

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