

February 2019

SPE Review London

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

FUTURE CHALLENGES

Finding the necessary skills, technology and expertise

PLUS+

Letter from the Chair

Young Professionals' PVT Day



BEHIND THE SCENES

MEET THE BOARD

EVENTS

SPE Review London

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

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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. 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 for an application form.

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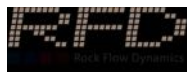
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<http://london.spe.org/home>



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!

I would like to start my February letter by thanking all of you for your choice in remaining loyal to our great Society in 2019. I would strongly encourage you to use **all the benefits** that SPE membership provides you: free webinars and online events, conferences and workshops discounts, magazines, OnePetro articles and many more.

Apart from the above benefits, have you heard of the e-mentoring scheme run by the SPE International? If not, then please be sure to login to your members page on **www.spe.org** and discover how you can **become an e-mentor** and help guide the career of a young professional. Or, alternatively, you can request a Mentor and gain valuable insights from the industry experts.

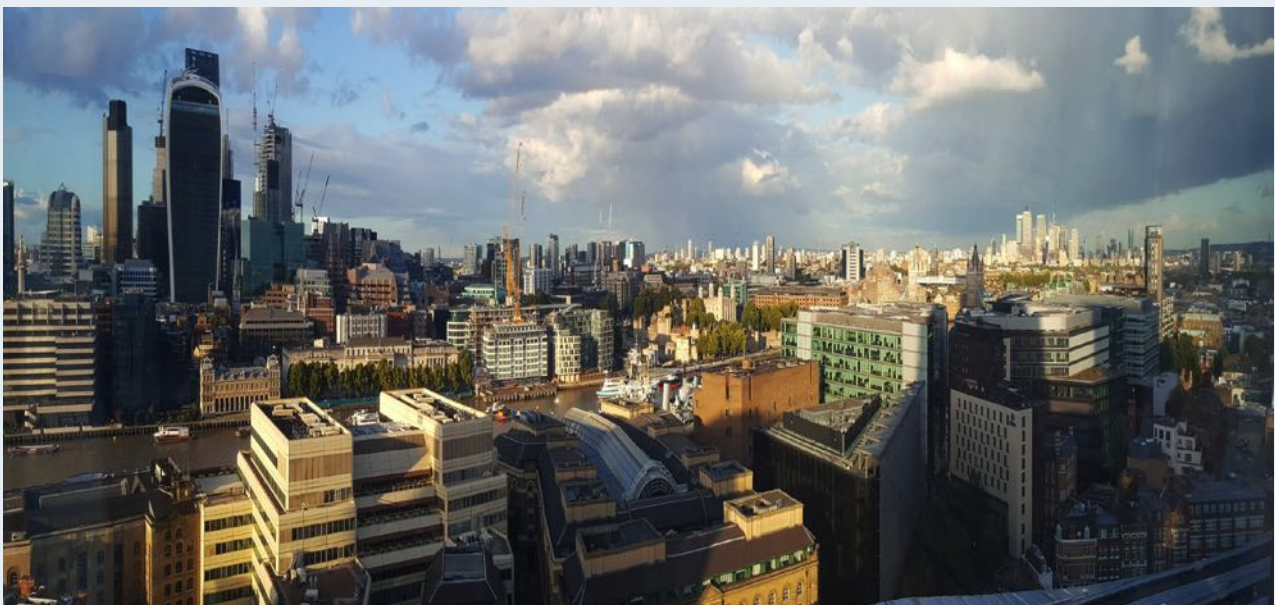
If you have already been involved with the e-mentoring program, then we (at SPE London), would like to hear about your experience. Please get in touch through **SPELondon@spemail.org** to share your story, which we may use in an issue of the SPE Review London or at an upcoming event.

Speaking of events, I hope you appreciated our monthly Dinner program and the seminars organised by our Young Professional committee during the first two months of 2019. We have many more events planned for the rest of the year – some of them in a new format that we are excited to plan. Be sure to catch all of them if you can - and follow us on our social media channels (**Facebook, LinkedIn**) as well as **visiting our website** for all the news and updates.

Finally, if you would like to be involved in helping us run the Section, organise one of the many activities, or have any other ideas that you think we should be implementing, please do let us know!

Best regards,

Dr Olga Bradulina
SPE Chairperson



The Future of Oil and Gas: Overcoming Challenges

EDITOR'S NOTE: On the 14th of January, Mike Gunningham presented to the Netherlands SPE Section on overcoming challenges in the future of the oil and gas industry, with focus on both business and technological challenges. In the following article Mike raises some of the key questions we must all consider as the oil and gas industry continues to transform, and touches on some of the key discussion points to come out of the presentation and interactive discussion which followed.

We can preface this discussion by asking: "What will be the price of oil?" And as engineers, we can ask ourselves: "Can we influence the price of oil?" Probably not. In which case, if we can't influence the oil price, what can we influence? To answer these questions, we need to consider what the future of oil and gas may look like in terms of the technology we may need.

Experts predict that oil and gas will still be required at roughly the same levels as now, for the next 30+ years. Never mind what might happen with local initiatives, oil and gas will be required to fuel the world for a long time to come. The big question is, how will we as an industry achieve this and make a profit in what could continue to be a changing industry and regulatory environment?

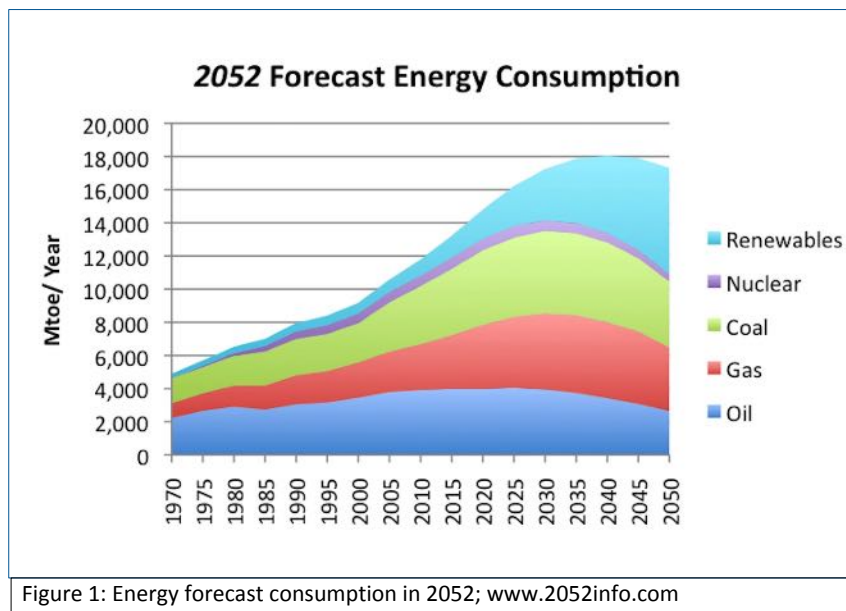


Figure 1: Energy forecast consumption in 2052; www.2052info.com

To answer, a personal approach needs to be taken in considering the kinds of technologies that might impact the business, from the reservoir through to how oil and gas processing facilities might be revolutionised, and the people and processes that might be needed. In light of the industry's sensitivity to commodity price volatility, additional resilience must be built in such that oil and gas fields are economically robust and can continue to be operated in a safe, sustainable and cost-effective manner. This compels us to continue to follow the Well, Reservoir and Facility Management Value Loop, which drives an iterative

cycle allowing for the delivery of more barrels at lower cost, in a safer and more efficient manner.

The future oil and gas industry will need skills, technology and expertise that are currently available, but not necessarily found in the oil industry at the moment. For example, we are already considering injecting carbon dioxide to reduce emissions and improve oil recovery. What if we could inject nano-particles or bacteria that could unlock billions of barrels of oil?

The medical industry has found compounds that can identify, target and attack cancer cells. How difficult would it be to find a chemical that loosens oil from rock? If we can find another chemical that reduces heavy oil to medium or light, imagine the extra oil the industry could recover. Creative application of existing technology to our industry presents a cost-effective and pragmatic solution to driving innovation.

Cheaper, multi-lateral and multi-purpose wells with downhole processing could provide better project economics, reservoir management and unlock fields that might otherwise be considered subeconomic. Single wells could develop larger reservoir volumes and dispose of effluent downhole, rather than lifting everything to surface. The wells could be designed on a modular basis using standard components, reducing costs and allowing wells to be repaired in a modular approach. Similarly with downhole processing, if anything happens to the well only one well is affected and not a whole platform or template.



If there is an issue with a well, then how can we fix it quickly and efficiently? Back In the '60s, there was an organisation that could rescue people anywhere in the world, at any time and in a matter of hours. They were called International Rescue and they used Thunderbirds' aircraft. They had continuous round the clock monitoring for any mayday calls, and standardised rescue equipment for pretty much any kind of rescue. Imagine if we could do something similar for wells. With continuous online monitoring, we will know how wells are performing and predict when they are going to fail and what the cause is. Because the wells are a standard modular design, they can repaired in a systematic way with standard parts. And rather than having a massive warehouse, long supply chains and delays in the procurement process and custom's formalities, all the spare parts could be 3D printed as required, within a matter of hours. So instead of the massive warehouse, a smallish workshop with 3D printers and a range of printing materials would suffice.

As the reservoir develops, wells could be upgraded and modified to maximise production and recovery, using downhole robotics, artificial intelligence and collaborative working. The new generation of oil people may start life as petroleum engineers, but they will need to develop a range of additional skills. Alternatively, new staff from outside the industry will join and have to adapt their skills to petroleum engineering and the oil and gas industry.

The question is, what are you going to do about the future of oil and gas?



Figure 2: 3D printing technology for large scale industrial manufacturing is advancing

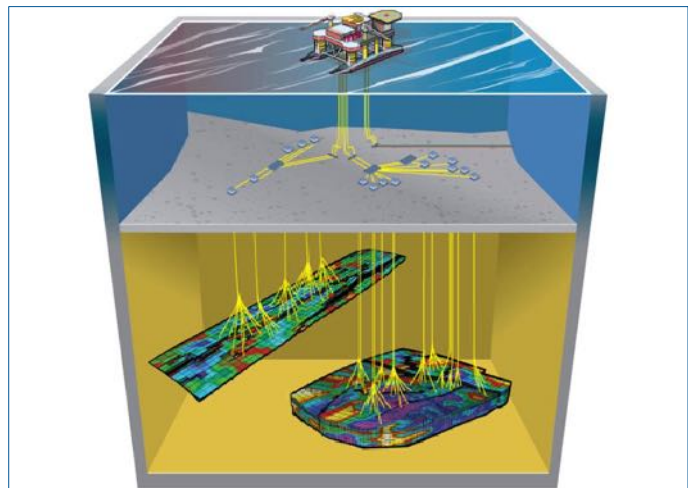


Figure 3: Multilateral, multi-utility well technology will assist reservoir development

Reference [1]: <http://www.2052.info/>

Mike Gunningham is currently the Chief Production Technologist with SGS Subsurface Consultancy, with over 30 years' experience around the world in oil and gas fields, greenfield developments to brownfield production optimisation, re-development and well, reservoir and facility management (WRFM). He was the



Head of Subsurface Support Team in Maersk Oil in Qatar (MOQ), and also the Well, Reservoir & Facility Management Team Lead in MOQ, rolling out and embedding WRFM in the Al Shaheen oilfield.

Mike graduated from Bradford University with a Chemical Engineering degree before completing his MSc in Petroleum Engineering at Imperial College. Before joining Maersk Oil Qatar in 2011, he has worked for Shell for 26 years, based mainly in Holland, while working all over the world on numerous projects.

Mike has been an active member of the SPE for 30 years, as Board Chair and Programme Chair for the SPE Qatar Section, Sakhalin and the SPE Netherlands. He has also been IPTC SPE Sub-Committee Co-Chair for the last two Doha based IPTC conferences. In 2009-10, he was a SPE Distinguished Lecturer. He is currently the Programme Chair for SPE Netherlands and represents the SPE on the Board of Directors for The International Petroleum Technology Conference.

SPE London Evening programme Spring 2019

Join us for the London Section evening meetings!

In addition to lectures by 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!



L-R: George Stosur (Distinguished Lecturer) and Adrian Topham (London SPE member) at the January evening meeting in 2019.

Schedule: March - May 2019

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' PVT Knowledge Day



In January, SPE YP London Section arranged a PVT Knowledge Day in collaboration with Expro, Petrophase and ALS Laboratories. Nineteen students and young professionals met at the Crowne Plaza in Reading to attend presentations from the organizers.

The day started with a presentation by Sue Pearson (Expro), summarising the different fluid analysis techniques and apparatus, including Gas Chromatography, Constant Composition Expansion (CCE), Differential Liberation (DL) and Constant Volume Depletion (CVD) experiments. Following the presentation there was a guided visit to the FAC laboratories, a short walk from Crowne Plaza.

The attendees were then split into two groups to visit the PVT laboratories at FAC, with a guided walk through the laboratory equipment used for PVT and compositional analysis. Attendees could see first-hand how the different fluid properties they use in their work are measured.

After a lunch and networking session, Brian Moffatt (Petrophase) focused on how to maximize the value of PVT information obtained at exploration or field development stages. The presentation touched on case studies, with emphasis on data QAQC to identify and potentially address problems related to measurements and sampling

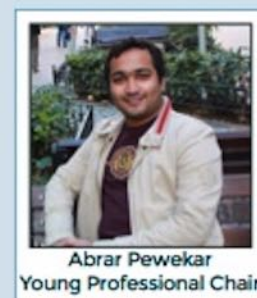
Following the afternoon coffee break, Angus Davidson (ALS Global laboratories) talked about different aspects of core analysis. These included handling and preservation of the core samples at the well site, core transportation from well site to the lab and different analysis workflows at the lab depending on the type of tests performed.

An engaging Q&A session followed each presentation, where the attendees took the opportunity to pose questions to the presenters. The event was a success with great feedback from the attendees who would like to attend more SPE YP events in the future.

Story and images provided by Abrar Pewekar, Young Professionals Chair, SPE London

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 March to June 2019

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 |

13th Annual SPE Women in Energy seminar Negotiating a gender-balanced future



Negotiation skills can't be overestimated; your role and how you are viewed in your organisation is almost constantly up for negotiation... salary, promotions, responsibilities... Practice and preparation is key to presenting your best self in a balanced workplace.

When: Friday 14 June, 2019, from 09:00 to 17:30

Where: Keyworth Centre, London South Bank University, SE1 6NG

Who is this seminar for: Men and women of all levels of seniority in the energy sector who are interested in sharpening their negotiation skills to promote a more gender-balanced energy sector.

Programme: An inspiring seminar where you will have the opportunity to explore how to improve your negotiation skills, discuss and take action on issues of gender balance, learn from industry professionals with a wealth of experience, share your experiences and meet peers during the workshops and networking sessions. *You can get a flavor of the event by following this link..*

Tickets: £30 (including lunch & networking drinks), £15 for students and unemployed people (VAT and Eventbrite fees not included).

Sponsorship: We are looking for sponsors. Gold, Silver, Bronze, and Women In Energy Supporter packages are available.

For more information: visit our website London SPE: Women in Energy; join our LinkedIn group SPE Women in Energy; or follow us on Twitter @Women_in_Energy

Any questions, please email: spelondon.wie@gmail.com

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