SPE/JAPT WORKSHOP:
Innovations in Natural Gas – Development, Storage, Transportation and Utilisation

27 – 28 JUNE 2019
THE WESTIN TOKYO, JAPAN

Natural gas is playing a central role in the primary energy mix, taking into consideration energy security, relatively small carbon dioxide emissions during combustion, ease of use and transportation, and so forth. Meanwhile, in the development and utilisation of natural gas today, “new challenges” have risen in proportion to the increase in reserves coupled with growing environmental awareness, climate change as well as the need to expand utilisation methods and more. This workshop will discuss innovative technologies used in natural gas development, storage, transportation and utilisation.

Session Highlights

- Conventional and Unconventional Gas Development
- Methane Hydrate as Unconventional Natural Gas Resources
- Digital Shift in the Gas Industry
- Gas Utilisation Technology Applications
- Emerging LNG Midstream-Downstream Solutions: Small/Micro LNG and LNG as Transport Fuel
- LNG Facility (Liquefaction)
- Environmentally Friendly Operation

Who Should Attend

Professionals involved in:
- Assets Management
- Conventional and Unconventional Gas Reservoir Engineering
- Digital and Information Technology
- Drilling and Completions
- Gas Production and Development
- Gas Technology
- Health, Safety and the Environment (HSE)
- Facilities Engineering
- Gas Processing
- Strategic Planning

Technical Programme Committee

CHAIRPERSONS

Hazl Sham Kassim
Chief Strategic Liaison Officer
Office of the President & Group CEO
PETRONAS

Masanori Kurihara
Professor
Waseda University

COMMITTEE MEMBERS

Steven Smart
Digital Transformation Manager (Oil & Gas)
Accenture

Tetsuro Tochikawa
Kaizen and Innovation Strategist
Halliburton

Shuichiro Ikeda
Manager, Reservoir Engineering
INPEX

Rafael Boada
Senior Production Engineer
INPEX

Yoshikazu Ichimaru
Principal Project Developer, Gas Business Development Unit, Global Energy Marketing Division
INPEX

Toshiki Otani
Reservoir / Production Engineer
JX Nippon Oil & Gas Exploration

Yoshiyuki Okano
Senior Manager, Reservoir Engineering
Japan Petroleum Exploration Company Limited (JAPEX)

Koji Yamamoto
Director General, Methane Hydrate R&D Group
Japan Oil, Gas and Metals National Corporation (JOGMEC)

Hirofumi Okano
Director, EOR Division, Technical Department, Oil & Gas Upstream Technology Unit
Japan Oil, Gas and Metals National Corporation (JOGMEC)

Hirokatsu Uchida
Group Leader, No.1 Process Engineering Department, Process Technology Division
JGC Corporation

David Manning
Managing Director
Oilfield Technologies

M Shah Mahmood
Heal of Strategy & Business Development
PETRONAS

Mohamad Othman
Country Head
PETRONAS Carigali Brunei Limited

Jugkapun Whangkitjamorn
Reservoir Engineering Manager
PTT Exploration and Production Public Company Limited

Anwarudin Saidu Mohamed
Chief Technology Officer
Reservoir Link Solutions Sdn Bhd

Nikhil Chaturvedi
V.P. & Leader of Industry Strategic Planning – Energy & Natural Resources
SAP Asia Pacific

Takashi Monden
Country Manager – Japan, Korea and Taiwan
Schlumberger

Kenji Furui
Associate Professor
Waseda University

Group Registrations Available!
Contact us at spekl@spe.org to arrange your group.

go.spe.org/20WA01W
**Workshop Objectives**

This workshop aims to share and discuss the latest technological trends, adoption and applications related to natural gas development amongst engineers and researchers across the upstream and downstream segments. Ultimately, the intention is to progress further in the natural gas development, storage, transportation and utilisation through the application of various state-of-the-art digital technologies along with environmental awareness in mind.

**WORKSHOP STATISTICS**

- 10+ hours of peer-to-peer networking opportunities
- 20+ hours of knowledge sharing and technical discussion
- 30 expert-led technical discussion topics

**ATTENTION NON-MEMBERS:**

Join our worldwide membership!

Non-member full workshop attendees can join SPE at no additional cost. Look for your exclusive offer by email shortly after the event.

**LEAGUE OF VOLUNTEERS**

**Engage • Support • Contribute**

Join our league of dedicated members who provide the energy that makes our society work.

- Enhance your leadership skills
- Contribute to programmes and activities with your knowledge and experience
- Meet and network with members near you and around the globe
- Demonstrate thought leadership in your area of expertise and interest at both local and international levels

www.spe.org/volunteer

Contact us at volunteer@spe.org for more information

---

**Technical Programme Preview**

**THURSDAY, 27 JUNE 2019**

0800 – 0850 Arrivals of Delegates and Registration

0850 – 0900 Safety Announcement by Hotel

0900 – 1000 **Session 1: Welcome and Introduction**

   - Co-Chairs: Hazil Sham Kassim, PETRONAS; Masanori Kunihara, Waseda University

1000 – 1030 **Group Photo / Coffee and Tea Break**

1030 – 1230 **Session 2: Conventional and Unconventional Gas Development**

   - Session Managers: Rafael Boxda, INPEX; Kenji Furui, Waseda University

According to the U.S. Energy Information Administration (EIA) latest energy outlook, natural gas production and consumption will continue to increase over the next decades. As natural gas burns cleaner than coal or petroleum products, in addition to more countries begin adopting a policy to reduce carbon dioxide (CO2) emissions, the demand of natural gas may be further accelerated to replace more carbon-intensive coal and liquid fuels. Conventional gas reservoirs are high-permeability reservoirs that can be produced by traditional completion and stimulation methods, while unconventional gas reservoirs are usually low permeability reservoirs that require special completion, production and recovery methods beyond the conventional development practices. Whether conventional or unconventional, each gas reservoir is unique in its character and performance. As such it needs a customised design to help maintain and increase gas production as well as improve development efficiency and economics.

This session explores the application of innovative technologies, novel well designs and field development concepts to reduce costs, increase production and improve reserve recovery in various types of gas reservoirs, including tight-gas sands, shale gas, coalbed methane, water-soluble natural gas, and gas-hydrate deposits.

1230 – 1300 Networking Luncheon

1330 – 1530 **Session 3: Methane Hydrate as Unconventional Natural Gas Resources**

   - Session Managers: Koji Yamamoto, Japan Oil, Gas and Metals National Corporation (JOGMEC); Anwarudin Sauid Mohamed, Reservoir Link Solutions Sdn Bhd; David Manning, Oilfield Technologies

Naturally occurring methane hydrate deposits under deepwater or permafrost are regarded as “possible” unconventional natural gas resources. However, technologies for economical production of them have not been fully established. Some recent research activities, majority of them done in the Asia Pacific and Indian Ocean regions, stimulate the development of this quite abundant but challenging resource target. Research issues exist in the basic science of their origin and accumulation, exploration techniques, production methodologies and technologies to be employed, and environmental implications. Some new ideas can be applied to laboratory and analytical techniques, interpretation of log and seismic data, subsea technologies, monitoring devices, geomechanical effects on stability of formations, computer aided modelling and simulation, attempts for actual gas production, carbon cycling, environmental change, geohazards and other technical aspects to study the resources.

The session invites broad communities of people – scientists, G&G specialists, petroleum and mechanical engineers, oceanographer and environmental specialists – but focuses on the application of science and technology for the development and production from methane hydrate reservoirs.

The session shall cover the following aspects:

- Methane hydrates development
- Methane hydrates reservoir and characterisation
- Methane hydrates wellbore construction
- Production testing and monitoring wellbores
- Natural gas production from methane hydrate deposits using CO2 sequestration
- Recent developments in field work and case studies
- Environmental hazards and mitigation

1530 – 1545 Coffee and Tea Break

1545 – 1745 **Session 4: Digital Shift in the Gas Industry**

   - Session Managers: Steven Smart, Accenture; Tetsuro Tochikawa, Halliburton; Jugkupan Wbangkijokkrarn, PTTEP; Tatsahi Monden, Schlumberger

This session explores the application of innovative technologies, novel well designs and field development concepts to reduce costs, increase production and improve reserve recovery in various types of gas reservoirs, including tight-gas sands, shale gas, coalbed methane, water-soluble natural gas, and gas-hydrate deposits.

**POSTER SOLICITATION & INFORMATION**

All participants are encouraged to prepare a poster for the Workshop. Presentations on both research and field experience are welcomed. Posters, including unconfirmed / partial results, are to be presented at an assigned time and are open for discussion. Posters will be on display for the entire Workshop period.

When preparing your poster:

- Avoid commercialism. No mention of trademarks / product name
- Poster size should be approximately 0.8m x 1.2m (W x H) or size A0 in portrait layout
- Identify topic by title, affiliation, address, and phone number
- Include a brief abstract that summarises the technology to be addressed
- Make the display as self-explanatory as possible
- Place the information in sequence beginning with the main idea or problem, method used, results, etc. (Draw a plan keeping the size and number of illustrations in mind)
- Keep illustrations simple by using charts, graphs, drawings, and pictures to create interest and visually explain a point
- Use contrasting colours
- Use large print for narrative material. (We suggest a minimum of 24 points or 3" high letters for the title)

*Note that the Workshop Programme Committee will review all poster abstracts / materials prior to display, and reserves the right to refuse permission to display any poster considered to be commercial in nature. If you are interested to participate, please email your proposed topic with a short abstract (between 200-300 words) to Hanna-Rose Abdul Jabal at hjabal@spe.org by 29 March 2019.*

The Society of Petroleum Engineers (SPE) is a not-for-profit organisation. Income from this event will be invested back into SPE to support many other Society programmes. When you attend an SPE event, you help provide even more opportunities for industry professionals to enhance their technical and professional competence. Scholarships, certification, the Distinguished Lecturer programmes, and SPE’s energy education programmes Energy4me are just a few examples of programmes that are supported by SPE.
Although it has been said that our gas industry is behind other industries in terms of digital maturity, we are steadily catching up. With smarter sensors, wider connectivity and ever-greater computing powers, we are able to conduct real-time modelling, drilling control, production monitoring and many other gas related workflows, and deliver those anytime and anywhere through the Cloud. In this context, gas companies are increasingly focused on digital technology and have quite a few initiatives on-going under the Chief Digital Officer. The Digital Shift for our industry is now playing out. In this Digital Shift, digital technology helps connect all components across the value chain and break down silos within organisations. This enables convergence across the board while offering innovative solutions. See and hear how the organisations are adopting digital technology to unlock new opportunities and facilitate shifts into new levels of gas business in the digital era.

### 1745 – 1845 Networking Luncheon

Session 5: Poster Session

**Session Managers:** Shuicho Ikeda, INPEX; Hirofumi Okano, Japan Oil, Gas and Metals National Corporation (JOGMEC)

### 1845 onwards Welcome Dinner

**FRIDAY, 28 JUNE 2019**

**0830 – 1030**

**Session 6: Gas Utilisation Technology Applications – Global Excellence Experiences**

**Session Managers:** Toshiaki Otani, JX Nippon Oil & Gas Exploration; Mohamad Othman, PETRONAS Carigali Brunei Limited

The application of “Gas Utilisation Technology” in petroleum resources development is increasing due to the demand for environmentally sustainable field development. The role of “Gas Utilisation Technology” is significant to ensure the efficiency of field development, to enhance gas utilisation and be one of the counter-measures for the on-going climate change. This session discusses the application of “Gas Utilisation Technology” such as CCUS / CO2-EOR, H2G-EOR, Gas Injection, Gas Compression Technology, globally and share the experiences for the growing application demand in the foreseeable future.

### 1030 – 1045 Coffee and Tea Break

### 1045 – 1245**

**Session 7: LNG Facility (Liquefaction)**

**Session Managers:** Hirokatsu Uchida, JGC Corporation; Nikhil Chaturvedi, SAP Asia Pacific

Supported by the recent increase in demand for LNG by emerging countries like China, India and South-East/South Asian countries, LNG is playing a bigger role as one of the main energy resources for the future. Japan has a long history of more than 50 years as an LNG importer and has acquired knowledge and lessons learnt which can be utilised by emerging countries.

This session introduces the latest LNG technologies such as small/mid/large scale LNG liquefaction facility and more, to further enhance LNG industry.

### 1245 – 1345 Networking Luncheon

**Session 8: Emerging LNG Mid-Downstream Solutions: Small/Micro LNG and LNG as Transport Fuel**

**Session Managers:** Yoshikazu Ichimaru, INPEX; M Shah Mahmood, PETRONAS

Emerging LNG importing countries located in East Asia, South-East, South-East Asian are considered to be potential demand growth centres in the future. However, the key to unlocking LNG demand in these markets require strategic approaches in achieving affordable and flexible LNG supplies. One of the key focus areas is cost reduction using innovative solutions across the value chain. For instance, utilising the Floating Storage Regasification Unit (FSRU) technology that results in shorter lead time with flexible and affordable LNG imports across those regions. In addition, increasing LNG demands from small-scale users, whether in remote inland/island locations, have started to gain attention from major oil and gas operators – inspiring them to implement innovative logistic solutions. Another hot topic in LNG demand is its use for transportation. To tackle climate change and pollution, LNG is considered a promising fuel for ships, trucks, taxis, and heavy duty construction equipment. In those applications, innovative solutions are once again essential for wider use.

This session explores the latest technical applications for emerging demand creation in the following focus areas:

- **LNG logistics**
  - LNG transportation, storage, regasification and gas distribution
  - Small/Micro LNG distribution to island and inland location
  - Pipeline/Virtual pipeline

- **LNG as transport fuel**
  - LNG bunkering
  - LNG/gas fuelled vehicle

### 1545 – 1600 Coffee and Tea Break

**1600 – 1800**

**Session 9: Environmentally Friendly Operation**

**Session Manager:** Yoshiyuki Okano, Japan Petroleum Exploration Company Limited (JAPEX)

It is necessary to ensure that the risks to the environment are understood clearly to properly eliminate any that adversely affect the environment significantly in a professional, safe, and environmentally responsible manner. This session discusses the following topics to help implement a more environmentally friendly operation.

- **Gas flaring reduction**
- **Gas utilisation and recycling**

Gas flaring reduction is one of the key environmental priorities for oil and gas operators globally. One of the innovative ways to resolve this is through the implementation of Flare Gas Recovery (FGR). Recovered waste gases can be put to valuable commercial use – gas injection for EOR, mini-LNG, Gas to Wire and more. These result in reduced emissions and cost optimisation.

### 1800 – 1830**

**Session 10: Workshop Summary and Closing Remarks**

Co-Chairs: Hadi Sham Kassim, PETRONAS; Masanori Kurihara, Waseda University

Review of session summaries

### SPONSORSHIP SUPPORT INFORMATION

Sponsorship support of the event helps offset the cost of producing workshops and allows SPE to keep the attendance price within reach of operation-level individuals, those who benefit most from these technical workshops. Supporters benefit both directly and indirectly by having their names associated with a specific workshop. While SPE prohibits any type of commercialism within the workshop room itself, the Society recognises that supporting companies offer valuable information to attendees outside the technical sessions.

**SPONSORSHIP CATEGORIES**

Sponsorship opportunities are offered on a first-come basis. Please contact SPE to enquire and verify the availability of categories. Existing supporters have the opportunity to renew the same sponsorship support information to attendees outside the technical sessions.

**SPONSORSHIP BENEFITS**

In addition to onsite recognition, SPE will recognise sponsors on the SPE website and in all printed materials for the workshop. Based on the category selected, supporting companies also receive logo visibility on promotional workshop items.

**FOR MORE INFORMATION**

For a detailed list of available sponsorship opportunities, including benefits and pricing, contact Hanna-Rose Abdul Jalil at hjalil@spe.org.

**GENERAL INFORMATION**

**DOCUMENTATION**

- Proceedings will not be published; therefore, formal papers and handouts are not expected from speakers.
- Work-in-progress, new ideas, and interesting projects are sought.
- Note-taking by attendees is encouraged. However, to ensure free and open discussions, no formal records will be kept.

**WORKSHOP DELIVERABLES**

- The committee will prepare a full report containing highlights of the Workshop and the report will be circulated to all attendees.
- Powerpoint presentations will be posted online and provided to attendees after the Workshop. Provision of the materials by Discussion Leaders will signify their permission for SPE to do so.

**COMMERCIALISM**

In keeping with the Workshop objectives and the SPE mission, in-house promotion, self-promotion in posters or presentations is not permitted. Company logos must be limited to the title slide and used only to indicate the affiliation of the presenter.

**ATTENDANCE CERTIFICATE**

All attendees will receive a Workshop attendance certificate. This certificate will be provided in exchange for a complete Attendee Survey Form.

**CONTINUING EDUCATION UNITS**

This Workshop qualifies for SPE Continuing Education Units (CEU) at the rate of 0.1 CEU per hour of the Workshop.

**TRAVEL/VISA**

Attendees are advised to book their airline tickets early. All travellers must be in possession of passports valid for at least six (6) months with proof of onward passage. Contact your local travel agent for information on visa requirements.

**DRESS CODE**

Business casual clothing is recommended. The Workshop atmosphere is informal.

**REGISTRATION FEE**

Registration fee ONLY includes all workshop sessions, coffee breaks and luncheons for the registrant. Accommodation is NOT included.

- **Speakers:** Registration Fees are made free and clear of, and without any deduction or withholding for and on account of, any taxes, duties or other deductions. Any such deduction or withholding, if required by the laws of any country are the sole responsibility of the Participant.

**REGISTRATION POLICY**

Registration fee MUST be paid in advance for attending the Workshop.

- Full fee is charged regardless of the length of time the registrant attends the Workshop, and cannot be prorated or reduced for anyone.
### ATTENDEE INFORMATION

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPE/JAPT Member</td>
<td></td>
<td></td>
</tr>
<tr>
<td>First Name</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Last Name/Family name</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Job Title</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Company Name</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mailing Address</td>
<td></td>
<td></td>
</tr>
<tr>
<td>City</td>
<td></td>
<td></td>
</tr>
<tr>
<td>State/Province</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Postal Code</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Country</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Office Phone</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Office Fax</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mobile Phone</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Company URL</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Discussion Leader

If you wish to be considered a Discussion Leader (10-15 minutes presentation), please indicate the subject/topic on which you would like to present:

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

### Technical Discipline

- Drilling
- Management and Information
- Production and Operations
- Reservoir
- Health, Safety and Environment
- Projects, Facilities and Construction

Please state your expectation for the Workshop, so that we can tailor a portion of the Workshop to answer attendees’ concerns:

I would like to receive updates on products, services and events from SPE.

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

### REGISTRATION FEES

<table>
<thead>
<tr>
<th>Super Early Bird Registration by 26 April 2019</th>
<th>Early Bird Registration by 24 May 2019</th>
<th>Registration After 24 May 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPE/JAPT Member</td>
<td>Non-Member</td>
<td>SPE/JAPT Member</td>
</tr>
<tr>
<td>USD 1,500.00</td>
<td>USD 1,700.00</td>
<td>USD 1,600.00</td>
</tr>
</tbody>
</table>

### TERMS & CONDITIONS

#### Registration Fee
- Fee includes workshop sessions, workbook, certificate, daily lunches and coffee breaks.
- Fee DOES NOT include accommodation. SPE will provide details of recommended hotels upon receipt of your registration.
- Registration of participant will only be confirmed upon receipt and receipt of full payment or an acceptable employee/sponsor of guarantee.
- All outstanding payments must be received on or prior to the date of the event for participants to be allowed to attend. SPE reserves the right to cancel the registration if payment is not received prior to or on the date of the event.
- Full fees are charged regardless of the length of time a participant attends the event and cannot be pro-rated.

#### Taxes
- Fee is made free and clear of, and without any deduction or withholding for and on account of, any taxes, duties or other deductions. Any such deduction or withholding, if required by the laws of any country are the sole responsibility of the Participant.

#### Cancellation Policy
- A processing fee of USD 100.00 will be charged for cancellation received thirty (30) days or more prior to the first day of the workshop.
- Registration cancelled between fifteen (15) days to twenty-nine (29) days prior to the first day of the event will be refunded 25% of the registration fee.
- Registration cancelled fourteen (14) days or less prior to the first day of the workshop will not be eligible for a refund.
- Participant who failed to attend will not be eligible for a refund.
- Cancellation must be notified in writing to SPE.

#### Privacy Policy
- SPE cares about the protection of your personal information. SPE’s Privacy Policy describes your rights and choices regarding the personal information that you provide to us.
- SPE’s Privacy Policy describes the practices regarding how SPE, through its affiliated corporate entities, collects, uses, discloses, or transfers the personal information that you share with us or that we collect about you when you become an SPE member, attend one of our events or visit our websites, or use our mobile applications.
- Please visit our website at www.spe.org/privacy or email spepl@spe.org for further details on SPE’s Privacy Policy. We reserve the right to amend the SPE Privacy Policy at any time and you will place the latest version on our website.

#### Disclaimer
- SPE reserves the right to change the speaker(s), date(s), venue or to cancel the event should circumstances beyond its control arise.
- SPE reserves the right to cancel a Training Course if number of participants is not sufficient. A minimum of 30 days’ notice will be given.
- SPE will not be liable for any damages, costs, losses or expenses of any kind incurred or suffered by you as a result of or in relation to SPE modifying, postponing or cancelling the event or any part of the event.
- The Participant acknowledges and agrees that by registering for this event, the Participant accepts these Terms and Conditions and agrees to be bound by them.

### PAYMENT METHODS

- Telegraphic Transfer
- Bank details will be provided in the invoice.
- Credit Card
- SPE accepts American Express, Visa, MasterCard and Diners Club and payment will be processed in US Dollars only.
- To pay online, go to: [www.spe.org/ registration/payment](http://www.spe.org/registration/payment)
- For manual payment, you will receive an email with instructions on securely submitting your payment.

SPE Contact:
Society of Petroleum Engineers
Suite 12-01, Level 12, Menara IGB
Mid Valley City, Lingkaran Syed Putra
59200 Kuala Lumpur Malaysia
Tel: +60 3 2182 3000    Fax: +60 3 2182 3030
Email: spepl@spe.org

SIGN UP BEFORE 26 APRIL 2019 FOR SUPER EARLY BIRD DISCOUNT!