



# Indonesia-Norway bilateral energy dialogue

**IOR through smart and efficient drilling,  
completion and well intervention**

**Programme and company profiles**

**Jakarta, 6 April 2017**

Aryaduta Hotel Jakarta Tugu Tani

Supported by







**Per Hagen,**  
Director  
Norwegian Energy  
Partners



**Diah Noor**  
Country Manager  
Norwegian Energy  
Partners

## INTRODUCTION

Indonesia's crude oil production has declined over the last decade. This has been a result of production from mature oil fields as well as less exploration/investment. The production can only be increased by aggressive exploration and application of advanced production, to increase oil recovery at each field.

The newly appointed Vice Minister for Energy and Mineral Resources underlines the importance of technology in the search for oil and gas to increase production and reserves from exploration (highly sophisticated seismic methods) and smart & effective drilling and completion.

It is our experience that there are many technologies able to add significant values in the petroleum sector and can be an enabler for oil production and increasing oil recovery. Some of them will be discussed during this seminar.

Learning and accumulating experience is becoming increasingly important. We trust that the people you will meet with and the presentations you will listen to at this seminar will be of value to you and potentially lead to investment opportunities in products and services in a frame of fruitful collaboration between our two countries.

Per Hagen  
Director

Diah Noor  
Country Manager

Supported by



# PROGRAMME

## ENERGY SEMINAR: EFFICIENCY IN THE OIL INDUSTRY

Improved Oil Recovery through Smart and Efficient Drilling, Completion,  
and Well Intervention

Jakarta, 6 April 2017

*Venue: Aryaduta Hotel Jakarta Tugu Tani, Ballroom A*

- 08.30 – 09.00**    **Registration**
- 09.00 – 09.40**    **Joint plenary session with Vice Minister of Energy and Mineral Resources**
- 09.40 – 10.00**    **Coffee break and preparation of the seminar**

### ***Presentations followed by Q&A***

- 10.00 – 10.20**    **Updates on Indonesia's Upstream Oil and Gas**  
by Muliawan, Deputy for Operations Management, SKK MIGAS
- 10.20 – 10.40**    **Statoil International and Exploration Drilling Industry Leader**  
by Bynjulv Kløve, Country Manager New Zealand, Statoil
- 10.40 – 11.00**    **Cost Effective Smart Water Production for Enhanced Oil Recovery by Membranes**  
by Professor Torleiv Bilstad, University of Stavanger

### ***Drilling session***

- 11.00 – 11.20**    **Drilling Efficiency**  
by Dr Ing Bonar Marbun, Head of Petroleum Engineering Student Program, ITB
- 11.20 – 11.40**    **Achieving Well Construction Efficiency through an Independent Realtime Data Platform to Enable 'Monitor-By-Recommendation' of Critical Operations**  
by Dismas Bismo Tjitrosoemarto, Technical Sales Asia Pacific - Oil & Gas, Kongsberg Digital
- 11.40 – 12.00**    **An Advance in Primary Solids Control Will Reduce Drilling Waste Volumes at Source without Compromising Solids Removal Efficiency**  
by Terje Vastveit, Regional Manager Far East, Cubility
- 12.00 – 13.00**    **LUNCH**

### ***Completion / intervention session***

- 13.00 - 13.20**    **PT CPI Lean Sigma Implementation to Improve Efficiency**  
by Rahmad Abdoellah, Deputy Sr. VP Asset Development, Chevron Pacific Indonesia
- 13.20 – 13.40**    **Anchored Production Straddle (APS) for Gas Lift in the North Sea (a case study)**  
by Paul Vettese, Asia-Pacific Sales Manager, Interwell
- 13.40 – 14.00**    **Light Well Intervention for Wellbore Cleanout**  
by Rosano Sosrohadisewoyo, Asia-Pacific Area Manager, Qinterra Technologies
- 14.00 – 14.20**    **Success Story on IOR/EOR**  
by Herutama Trikoranta, Development Director, PERTAMINA EP
- 14.20 – 14.40**    **Innovative Completion Technology Saves Subsea Well Construction Cost and Improves Well Life and Productivity**  
by Geir Melhus, VP Perforations, TCO
- 14.40 – 15.00**    **Cantilever Unit for Well Restoration, Well Intervention and P&A**  
by Tor Ødegård, Asia-Pacific Region Manager, Dwellop
- 15.00 – 15.20**    **R&D in Drilling**  
by Sugeng Riyono, Coordinator R&D Group for Exploration Technology, LEMIGAS
- 15.20 – 15.40**    **CCUS - Technology the World Needs**  
by Oscar Graff, VP & Head of CCUS, Aker Solutions
- 15:40 – 16:00**    **CLOSING AND PHOTO SESSION**  
by DGOG and Norwegian Energy Partners

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Aker Solutions



**Speaker**

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**Presentation title**

CCUS – Technology the World Needs

**Abstract**

CCUS – Carbon Capture, Utilization and Storage is a necessity, if we shall reduce global warming to maximum + 2 deg. C in 2050 (Ref. COP21, Paris Agreement December 2015). Aker Solutions is one of few companies that offer technology and products throughout the entire CCUS value chain from carbon capture, via utilization and transport to EOR and/or permanent storage. Aker Solutions has developed an improved carbon capture technology which is ready for the market. The technology is qualified for gas and coal fired power plants, cement industry and Waste-to-Energy plants. Aker Solutions is evaluating several CO2 EOR projects, which for many regions could result in a win-win solution; - reduced CO2 emissions to the atmosphere and increased recovery of oil from mature fields. Aker Solutions is also developing pioneering subsea solutions for CO2 EOR and bulk separation of CO2 from natural gas. These new developments can open the offshore CO2 EOR market and offers a new alternative for production of CO2- rich gas fields offshore.

**Company profile**

Aker Solutions is a global provider of engineering, design, production systems and services to the oil and gas industry. Our expertise brings discoveries into production and maximizes recovery with a focus on sustainability and limiting the environmental impact.

Aker Solutions has 14 000 employees in about 20 countries around the world that embrace innovation and collaboration in a drive to create a sustainable future. We put HSE and operational excellence first. We strive for honesty and integrity in all that we do.

We provide subsea production equipment and offshore field design, ranging from concept studies and front-end engineering to detail engineering projects of complex production facilities. We carry out maintenance and modifications work and provide services during operations as well as deliver solutions to extend the lifetime of oil and gas fields. Aker Solutions has been a front-runner within CCUS and offers new technology and solutions for the industry.

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Cubility Malaysia SDN



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**Presentation title**

An advance in primary solids control will reduce drilling waste volumes at source without compromising solids removal efficiency.

**Abstract**

An increased awareness of the damage done by the disposal of drilling waste has over the last decade or more generated a number of solutions. However, none of these solutions have addressed the issue using a fundamental of waste management. This is that, whenever possible, waste volumes should be reduced at or near their source.

Drilling waste is primarily made up of drill cuttings, a combination of rock particles and drilling fluid. While reducing the volume of rock particles can only be achieved by changing well geometry the volume of mud lost can be reduced by a more efficient separation of these rock particles and the drilling fluid. Any improvement in separation efficiency will produce a corresponding reduction in the volume of waste produced.

Four years ago a newly developed vacuum based solids control technology was, for the first time, permanently installed on an offshore rig. The primary drivers for this installation were to raise HSE standards, minimise waste and reduce costs. Since this first installation other rigs have now adopted this step-change technology and today it has been used to drill more than 60 wells by 15 operators in 8 countries.

The benefits of using this vacuum based technology to address the critical issue of drilling waste reduction at source can now be clearly defined. How this has been achieved will be discussed using the field experience and data gained over these last few years.

**Company profile**

Cubility AS is an innovative Norwegian company that is revolutionising drilling operations and the waste and solids control issues that accompany them.

Cubility is based in Sandnes, Norway, where it houses a state-of-the-art test centre, and has sales offices in Houston, London, Saudi Arabia and Kuala Lumpur as well as distribution partners across all the major oil & gas producing regions. Today, Cubility's customers include many of the industry's leading operators and drilling contractors.

**Website:** [www.cubility.com](http://www.cubility.com)

Dwellop

D//WELLOP

**Speaker**

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**Presentation title**

Cantilever Unit for Well Restoration, Well Intervention and P&A

**Abstract**

Dwellops Cantilever Well Intervention Solution enable cost effective seamless operation from Wireline, Coil Tubing and Drill-pipe from a Self-Propelled Self Elevated Liftboat or Jack-up. The Cantilever system enables coil Tubing and wireline operation to be operated in an efficient and safe manner. All equipment on the cantilever will be pre-tested and installed prior to vessel arriving on location.

This will reduce the rigging time and give a smooth and efficient operation compared to conventional ways of doing these operations.

The cantilever work-over system is hydraulically powered, rack and pinion hoisting and a pipe-handling system that handle range 3 DP up to 14.5 meter length. The cantilever today have a pulling capacity of 250 mt and a capacity to drill wells up to 15,000 feet. It is also capable to conduct snubbing operation.

The units comes with a fit for purpose mud-package, cementing and can be equipped for well testing.

Dwellop also provide solutions for platform rig up designed for efficient move from well to well as operation is completed.

**Company profile**

Dwellop has over the last decades developed and delivered a wide range of well intervention products and systems to top tier services and oil companies. These products and systems are providing added value for well intervention operations globally. All our products and systems are a result of in-house design and engineering and close dialog with our customer in order to provide tools for safer and more cost-effective operations.

**Website:** [www.dwellop.no](http://www.dwellop.no)

Interwell



**Speaker**

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**Presentation title**

Anchored Production Straddle (APS) for Gas Lift in the North Sea (a case study)

**Abstract**

In 2013, a client's production had ceased following the suspected failure of the artificial-lift system. The subsea well had three gas lift mandrels installed; the lower two valves were installed too deep which led to the well lifting from the top valve only. This then resulted in the suspected failure occurring in the top valve.

Interwell's Anchored Production Straddle (APS) can be used to retrofit a gas-lift device, and remedy existing gas-lift systems that have failed, or deepen the point of gas-lift in the well.

Interwell's approach to the problem was to increase the lower gas-lift effectiveness and to straddle the existing upper side-pocket mandrel (SPM). To do this, Interwell did a cross-company collaboration between a gas lift valve provider and the client, to create a retro-fit gas-lift straddle.

The client was able to achieve a production rate of 1,685 BOPD, and continued producing at the same rate 18 months later. Interwell's collaboration with the gas lift valve provider and the client resulted in a safe and successful operation and the well regaining full production.

The presentation will look at the execution of the operation, and the behaviour of the well before and after the intervention operations.

**Company profile**

Interwell is an oil service company operating globally in more than 30 countries with headquarter in Stavanger, Norway.

Our goal is to ensure increased recovery and barrier security for global upstream energy companies by focusing on research, development, product qualification, and flawless operation using our bespoke technology, competency, and 25-year operational experience.

We provide both custom-made and off the shelf well solutions. Our main competence revolves around plug and straddle solutions with related setting, pulling and measurement tools.

Interwell's technology is designed for reservoir and flow assurance applications, shallow and deep-set well barriers, well integrity ground-breaking P&A solution, and special niche completion products.

**Website:** [www.interwell.com](http://www.interwell.com)

Kongsberg Digital



KONGSBERG

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**Presentation title**

Achieving well construction efficiency through an independent realtime data platform to enable 'Monitor-By-Recommendation' of critical operations.

**Abstract**

Having the right information available at all stages of well construction helps to minimise non-productive time and reduce HSE incidents, both critical in improving cost-efficiency and well delivery in ever more challenging exploration environments.

By leveraging the existing industry leading KONGSBERG SiteCom® solution, operators and government institution can further capitalize on the ready and easy availability drilling information to move from 'monitoring-by-exception' of normal drilling operational routine to 'monitoring-by-recommendation'. The KONGSBERG SiteCom® Well Advisor solution, a joint development with British Petroleum (BP), effectively demonstrates how the use of real-time information in drilling and related operations can drive efficiency improvements yielding a high return in terms of cost savings versus the capital investment to deploy the technology.

This presentation will describe the ongoing evolution of an independent realtime data management infrastructure, service and solution. Three case studies of KONGSBERG's relevant project experiences will be discussed:

1. A major European independent Operator utilized the solution as the de facto hub of the organization's wider suite of third-party reporting, analysis, and optimization tool, acting as a conduit through which rigsite data flow to, from and between these tools (Regan et al., 2015).
2. A strategic decision by a National Oil Company in South East Asia, to utilize the solution in an enterprise-wide level supporting operations globally, from the previously 'service-company-dependent' solution (Mohamad et al., 2016).
3. A project by a Supermajor to integrate realtime data with predictive tools, processes, and expertise to enable more informed operation decisions (Israel et al., 2015).

**Company profile**

Kongsberg Digital is a provider of next generation software and digital solutions to customers within Maritime, Oil & Gas and Renewables & Utilities. The company's headquarter is in Norway and consists of more than 500 employees with leading competence within internet of things, smart data, artificial intelligence, simulation, automation and autonomous operations. Kongsberg Digital is the group wide center of digital expertise for the KONGSBERG Group

**Website:** [www.kongsberg.com/kdi](http://www.kongsberg.com/kdi)

Qinterra Technologies



**Speaker**

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**Presentation title**

Light Well Intervention for Wellbore Cleanout

*Light, advanced, highly effective & efficient well intervention cleanout technologies and solutions for arresting or reversing production decline in mature and marginal fields.*

**Abstract**

Powerful and precise eLine deployed powered mechanical application technologies for wellbore cleanout, completion manipulation and access & recovery purposes are becoming more readily available to the industry, providing increasingly viable alternatives to the more conventional heavy well intervention solutions of old, e.g. coiled tubing or pipe conveyed.

Their applicability is even more pertinent for offshore fields having facilities with restricted deck space or loading capability, limited crane capacity, minimal personnel accommodation, and those whose economic envelope is narrow in relation to cost of intervention vs the financial return generated from the resulting production increase (a situation made even more acute with lower oil prices). eLine deployed in well solutions that do not require completions to be pulled to execute an intervention can remove the need for rigs or lift-boats, offering risk reduced, efficient and cost effective intervention options.

Such an approach is particularly relevant in the offshore oil & gas fields of South East Asia. These are predominantly aging brownfields with a high percentage of shut in/idle wells, a portion of which could be intervened, evaluated, have their issues rectified, and ultimately their production reinstated and further optimized. With the current deep and widespread CAPEX cuts severely reducing new well drilling, efficiently rejuvenating existing well stock is the choice option to maintain or increase production.

Aside from production decline due to natural depletion, other common issues detrimentally impacting production rates include scale build up, debris accumulation or produced sand settling. These issues also often hamper well access for relevant remedial work e.g. plug setting for water shut off or re- and new-perforating to rejuvenate old or bring on new zones. This presentation will focus on e-line conveyed and powered Wellbore Cleanout technologies and solutions to address such well blockage.

**Company profile**

Specialists in the field of well intervention, Qinterra Technologies has provided the industry with cutting-edge innovations and expertise to resolve a variety of complex intervention challenges and enhance well production, whilst reducing associated costs and risk.

Our technologies, developed in our Technology & Innovation centres in Stavanger and Houston, have been utilised in Tractor Conveyance, Wellbore Cleanout, Completion Manipulation, Wellbore Access and Recovery and Wellbore Barrier and Isolation operations throughout the globe for our ever-expanding client base.

With over 30 years in the well service business, every operation we perform is guided by three core principles: Safety, Quality and Efficiency.

**Website:** [www.qinterra.com](http://www.qinterra.com)

Statoil



**Speaker**

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**Presentation title**

Statoil International and Exploration Drilling Industry Leader

**Abstract**

- Shaping the future of energy
- Our Strategy
- Leadership in Statoil
- TPD priorities
- D&W priorities 2018
- Status improvement agenda
- World-class drilling performance
- IED Improvement agenda
- What is lean?
- How to follow up contractor management
- TPD D&W improvement agenda

**Company profile**

Statoil entered Indonesia in 2007, and has since build an exploration portfolio in a systematic manner. Oil and gas exploration in Indonesia is now shifting to the eastern region of the country where most of the new areas are located offshore. As a leading international deep water operator Statoil sees potential for growth in this region. Statoil has currently 21 employees in its offices in Jakarta.

Statoil has drilled as operator three exploration wells in the Karama PSC in 2012, as well as participated as partner in the drilling of four wells in the Kuma PSC (operated by ConocoPhillips), North Ganai PSC (operated by Eni Indonesia, North Makassar Strait PSC and West Papua IV PSC (both operated by Niko Resources).

Statoil acquired 2013 as operator 6,000 km 2D seismic in the Halmahera II PSC. The data have since been processed and is being analyzed. In 2015, Statoil was awarded a new working area, the Aru Trough I PSC. Statoil operates this license currently with a 100% working interest. This position strengthens the optionality in Statoil's long-term portfolio and secures potential upsides from its existing exploration acreage. A large 3D seismic survey this area had been completed in October 2016 as a joint project with the neighboring Aru PSC and West Papua IV PSC where we are a partner with Ophir Energy.

**Website:** [www.statoil.com](http://www.statoil.com)

TCO



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**Presentation title**

Innovative Completion Technology saves subsea well construction cost and improves well life and productivity

**Abstract**

TCO has a newly developed technology to cope with B-annulus pressure build up on subsea wells. The tool simplifies casing design and lower risk for casing collapse due to thermal expansion, and sustained Casing pressure late life. The valve system is mounted in the 10 3/4in casing (typically) allows pressure to build up to a preset value before bleeding the excess pressure in to the A- annulus. A- Annulus Pressure can then be controlled from surface. The valve will close again on the preset value to maintain pressure support in the annulus.

TDP Barrier glass plugs simplify Completion programs and enables rig time savings, while our Chemical injection system provides steady no-slug injection of chemicals to provide continuous wellbore protection.

**Company profile**

Founded in 1998, TCO is a provider of products and services to the global oilfield services industry. The company serves the upstream oil and natural gas industry throughout the reservoir life cycle and specializes in the design, manufacture and installation of completion barrier plugs (laminated glass barrier plugs), chemical injection systems, topside chemical injection systems, multi-cycle valves and Annulus Pressure Relief Systems, as well as the provision of tubing-conveyed perforating (TCP) equipment and services.

**Website:** [www.tcogroup.com](http://www.tcogroup.com)

**Speaker**

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E-mail: [torleiv.bilstad@uis.no](mailto:torleiv.bilstad@uis.no)**Presentation title**

Cost effective smart water production for enhanced oil recovery by membranes

**Abstract**

Membrane technologies are commercial market-competitive for desalination, onshore and offshore water treatment. Membranes used offshore are not only for desalination, but also for scale prevention or sulfate removal from sea water prior to injecting into petroleum reservoirs. This practice has successfully been implemented in the North Sea for 30 years for pressure support.

A new area of membrane implementation is for production of smart water in enhanced oil recovery. Adjustment of ionic composition in sea water is successfully accomplished by membranes with defined pore sizes. Nanofiltration (NF) and reverse osmosis (RO) are the two main membrane types involved in smart water production. Proper choice of membrane material, membrane surface area and membrane pore size provides optimal water recovery and ion separation.

Offshore platforms often include desalination for potable water production i.e., RO membranes. With an RO infrastructure already in place, installation of NF membranes for smart water production is cost effective. Normal operating pressure for RO in seawater is 60 bar. For NF the operating pressure is 3-30 bar without use of chemicals. Membranes producing smart water minimizes fresh water consumption, reduced water-handling costs and power consumption.

**Keywords-** Nanofiltration membranes, Reverse Osmosis, Enhanced Oil Recovery, Smart Water

**Company profile**

The University of Stavanger, Norway, has 10.700 students and 1400 faculty, administration and service staff.

Academic life at the University of Stavanger is organized into three faculties; faculty of Social Science, faculty of Arts and Education and faculty of Science and Technology. It comprises a total of 14 departments/schools and two National Research Centres, as well as the Museum of Archaeology. IRIS is another important research centers as consortiums of The University of Stavanger. The Stavanger Innovation Park (Ipark) is also located on campus, running incubator activities and helping new enterprises start up.

**Website:** [www.uis.no](http://www.uis.no)



## Norwegian Energy Partners

Norwegian Energy Partners is an independent non-profit foundation established to strengthen the long-term basis for value creation and employment in the Norwegian energy industry through expanding the industry's international business activities.

Norwegian Energy Partners has approx. 250 partners from the Norwegian O&G and renewable energy industry. To promote the Norwegian energy industry and create market leads, we organise a large variety of events nationally and internationally: conferences, seminars, social networking, B2B meetings, industry delegations, workshops, joint exhibition participation and other networking events.

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