

Technology Strategies Highlighted at Norway Conference

Ted Moon, *JPT Online* Technology Editor

From 15 to 16 October, more than 120 oil and gas professionals converged in Bergen, Norway for the fourth SPE Norwegian Petroleum Technology Conference (PTC). The conference, which was held in conjunction with Norway's Offshore Technology Days Exhibition, allowed managers, engineers, and business development planners to discuss how Norway plans to maintain its status as a global energy technology leader and incorporate innovations from companies big and small, far and wide.

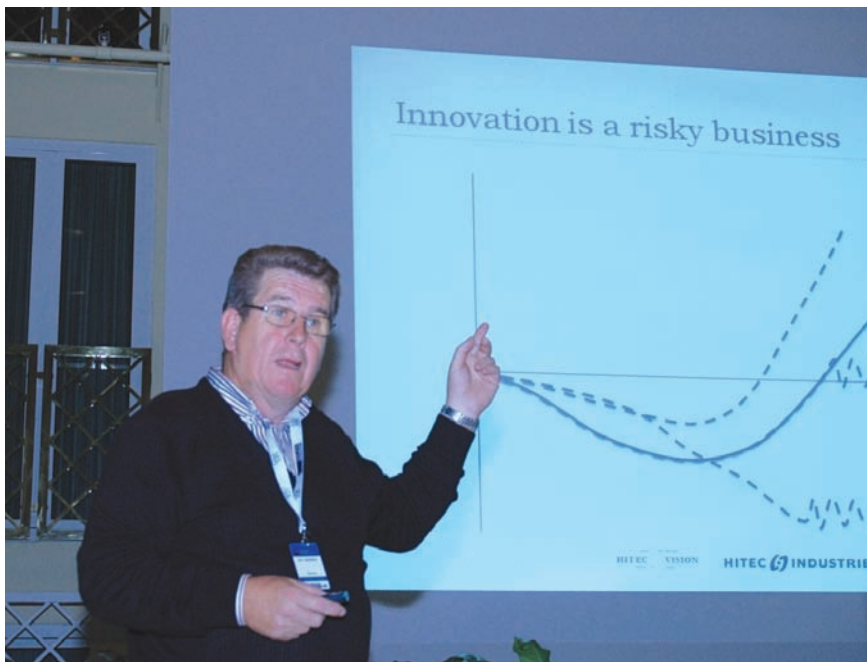
"The conference was really focused around StatoilHydro's dominant role in the Norwegian oil and gas industry and how they plan to ensure continual development of new technologies and put them to use," said Jan Roar Drechsler, Chairperson of the

PTC Program Committee and the SPE Stavanger section, as well as a Principal Engineer and Technical Representative for Completions with StatoilHydro. "In the past [prior to the merger of Statoil and Norsk Hydro], there was a sort of competition between Statoil and Hydro to be first in the development of a new technology. There is concern that now some development programs, either within the company or with different partners, might be put aside or altered. People wanted to know how these would go on in the future."

The first two presenters elaborated on this concern by outlining the role of technology in developing the reserves on the Norwegian Continental Shelf (NCS) and the dangers of scaling back future technology development programs. Roy Ruså, Vice President

of Technology for Petoro, discussed upcoming technology challenges for operators and service providers in his talk "Technology Critical—Do We Act Accordingly?" Ruså pointed out that the mature NCS province still has many significant business opportunities, but they are linked to even greater technical challenges, such as realizing remaining reserves from smaller prospects, reducing nonrecoverable reserves, and finding and developing new recoverable resources. He acknowledged StatoilHydro as the major driver of technology development on the NCS, but added that the company must continue making significant investments in R&D and increasingly diversify its portfolio of production solutions by pulling in more technologies from other industries and geographic regions.

Keynote speaker Hans Henrik Ramm, Commentator and Editor with Ramm Communication, next asked the question, "Is Norway's Technology Leadership at Risk?" Ramm stated that research in the Norwegian petroleum industry appears to be in retreat, a sentiment shared by the heads of several operators and service companies in the NCS. There were several reasons suggested for this retreat, such as shifting priorities within StatoilHydro following the merger and a general industry decline in the willingness to develop and adopt new technology. Ramm said that to maintain its status as a leading technology developer, the Norwegian petroleum community must have access to frontier acreage, particularly in Arctic deepwater regions. The process for technology development must be continuous rather than segmented in four-year time windows, and it must include the government working with oil companies to implement major R&D programs with suppliers.



Remora's Gjeddebo discussed the risks of innovating in the oil and gas sector.

StatoilHydro's Strategy Highlighted

It was then StatoilHydro's turn to discuss its technology strategy, with particular emphasis on how it plans to implement new and innovative solutions to increase and constantly improve production in safe, sustainable ways. Margareth Øvrum, StatoilHydro's Executive Vice President of Technology and New Energy, began with her presentation, "The Importance of Technology—StatoilHydro's Technology Strategy." Øvrum explained StatoilHydro's mandate to remain a globally competitive company by maximizing NCS value creation and applying world-class technology and project execution methods. She identified the major challenges driving StatoilHydro's technology strategy as resource replacement, oil-sand value-chain optimization, deepwater and harsh environment operations, and operating in environmentally sustainable ways. Specific initiatives to address these challenges were also presented, such as using the latest subsurface visualization tools to increase discovery rates and recovery factors, increasing oil-sand recovery at lower energy expenditures, extending subsea technology to ultradeepwaters, and continuing to improve carbon dioxide management efforts.

Øystein Håland, StatoilHydro's Vice President of Subsurface Technology, next provided an overview of how StatoilHydro views and manages its R&D efforts, both internally and externally, in his talk "Making the Strategy Operative—What does it take?" He stated that the company's model for cooperation is multifaceted, consisting of cooperative efforts with academia, research institutes, and service providers. Håland also said that StatoilHydro spends a considerable amount of its R&D funding on external, cooperative efforts with the aim to more quickly implement promising technologies in the field. To successfully identify, evaluate, and implement the right technology, the company employs a systematic and continuous process that sets targets and monitors progress, incorporates aggressive data acquisition programs, and shares experience with all members of multidisciplinary asset teams.

A series of presentations were then given that highlighted StatoilHydro's

technology advancements and field successes in the areas of geophysical reservoir monitoring, subsea processing and transportation, and intelligent/automated drilling. Following that, major technology providers FMC Technologies, Aker Solutions, and Schlumberger presented their views on the future of technology in the NCS. "The FMC and Aker presentations focused more heavily on the subsea environment, while Schlumberger's was more into reservoir and subsurface topics," said Drechsler.

FMC Senior Vice President Tore Halvorsen and Pål Helsing, Senior Vice President of Strategy and Technology for Aker Solutions, both opened their discussions with specific subsea technology advancements from their respective companies. In terms of future technology needs, they discussed further advancements in subsea processing and boosting and the development of equipment for deeper wells in arctic conditions. To achieve this, both men discussed the need for mutually beneficial, long-term partnerships between the end-user operators and the service providers. Schlumberger's North Sea General Manager Olivier le Peuch pointed to several areas where the NCS can lead future technology developments, such as more integrated operations, moving from target drilling to production steering, and greater advancement in environmental initiatives like carbon capture and sequestration.

"They all brought in some elements and examples from other areas of the world rather than just being North Sea-based," said Drechsler. "It was a very good mix, and they were all very well received."

Role of Academia, Small Companies

The second day was devoted to discussions around how smaller service providers and academia might better contribute to technology developments in the NCS. Jon Kleppe, Professor in the Petroleum Engineering and Applied Geosciences department at the Norwegian University of Science and Technology (NTNU), began the day with a discussion on academia's view on technology development with regards to the NCS. Kleppe stated that nearly 90% of technical university graduates enter the oil and gas industry as engi-

neers and scientists, which mandates that universities must be more closely partnered with the industry to produce graduates with the right mix of solid fundamental knowledge, exposure to real-world challenges and data, and training in using modern tools.

Kleppe also discussed NTNU's growing role in encouraging recruitment into the industry, a necessary fact considering that in 15 years, almost half of the engineers currently working in the industry will retire, by some estimates. "While the university will play a role in encouraging energy careers, Kleppe mentioned that the capacity to motivate young people for a technology field has to start at an earlier age, with more emphasis on science and math," Drechsler said.

A discussion on the increasing role of venture capital in upstream technology developments was the original topic of the next presentation by entrepreneur Jon Gjedebo of Remora ASA, "but given recent downturns in the worldwide economy, access to venture capital is not so easy at the present time," said Drechsler. "Instead, Gjedebo discussed the hardships of starting a new company based on innovation in the oil and gas sector."

Gjedebo reviewed the well-known, hockey stick-shaped earnings versus time profile that is typical for most startup companies. "In this scenario, a new company will typically have a long period of negative growth [spending] before the hockey stick turns upward and it starts generating revenue," Drechsler continued. "In the beginning you are spending a great deal of money and are constantly faced with challenges."

Gjedebo said that the longer an entrepreneur can live without new money and ride out negative earnings, the greater the chances are for survival in the long run. "There comes a point where you finally start making money and have overcome the first set of challenges, but in order to keep innovating you will face a new set of challenges and start losing money once again," said Drechsler. "It is a cyclical process, and surrounding yourself with people with positive attitudes will help you weather these cycles."

The last set of presentations highlighted technology strategies and

successes of service companies, both directly and indirectly related to oil and gas production. Rune Freyer, Founder of Easywell, discussed his vision for innovation in small companies, which included the importance of using multifaceted teams of people to evaluate new technology rather than one group with the same point of view or background. Henning Hansen, Chief Technology Officer with Ziebel, discussed how new companies must make an effort to truly differentiate themselves from competitors and find the right partners at the outset. For the Norwegian company, that meant building a reputation abroad first and then bringing the proven technology back into the NCS operating environment. The final presentation came from Ulisses Mello, Manager of Petroleum and Energy Analytics with IBM, who discussed his company's trends and directions in technology development. "I felt that it was good to hear about technology development from another industry, how much they spend on R&D, and how little of that translates to a successful product," said Drechsler. "It forced us to ask if perhaps we were setting too high a benchmark and if the success ratio was too high in our industry to allow sufficient new technology to be generated."

Each day ended with a panel discussion on Norwegian technology needs and the industry's plan to implement new technologies from all contributors, regardless of size or discipline. Panels consisted of many of the conference speakers from that day. "There was good chemistry within the panel discussions," Drechsler said. "The discussions were open, honest, and at times humorous. They allowed the panelists to let off some steam."

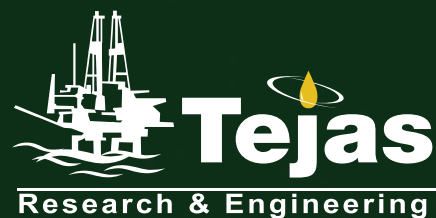
The panel discussions also allowed greater insight into StatoilHydro's process to evaluate and incorporate new

technologies into its portfolio from all sources. "They have developed a process for small and medium companies to more easily get their technologies in the front door," said Drechsler. "In addition, navigating StatoilHydro's technology landscape has become easier, as there are now specific contacts for specific technologies. It should be easier to find out who to contact now than in the past."

StatoilHydro uses a "stage-and-gate" style process in which new technologies are tied to internal company sponsors who understand the technology's potential and have a responsibility for shepherding it through successive stages of evaluation. These sponsors include StatoilHydro employees in R&D and marketing who steer the product through early stages of the process (prefield trial) and operating licensors in the field who have to see the need for the technology and apply it. "This discussion was well received by the audience," Drechsler said, "because everyone realized the enormous consequences of failure in the North Sea and the need for a systematic, team approach to evaluation. A technology may of course still fail, but if there is not an internal process for identifying, evaluating, and incorporating a technology into normal field operations, then it is sure to fail."

Drechsler concluded by touching on the planned topics for the 2009 PTC conference, which will take place in Bergen during 14–15 October 2009. "Planning has already started for next year's event, which will be aimed at reaching towards worldwide challenges such as the price of oil, deepwater, the value chain, and implementation of new technology—both showstoppers and intellectual property. Anyone who wishes to make a presentation can contact me via the SPE Stavanger web page [www.spe.no]."

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