

OTC Highlights Innovation, Topical Discussion

New technologies, innovative approaches, and contemporary energy topics were the focus of the technical and special panel session presentations at the 40th Offshore Technology Conference (OTC) held in May in Houston. The event shrugged off a global economic recession and initial concerns about swine flu to record an attendance of 67,721, attracting energy professionals from more than 120 countries.

Annual OTC awards honored outstanding achievements in the offshore E&P industry. This year's recipients—Peter Noble, Wolfgang Schollnberger, and Sakhalin Energy Investment Company—join a distinguished group of individuals and companies who have received this award since 1971.



Schollnberger

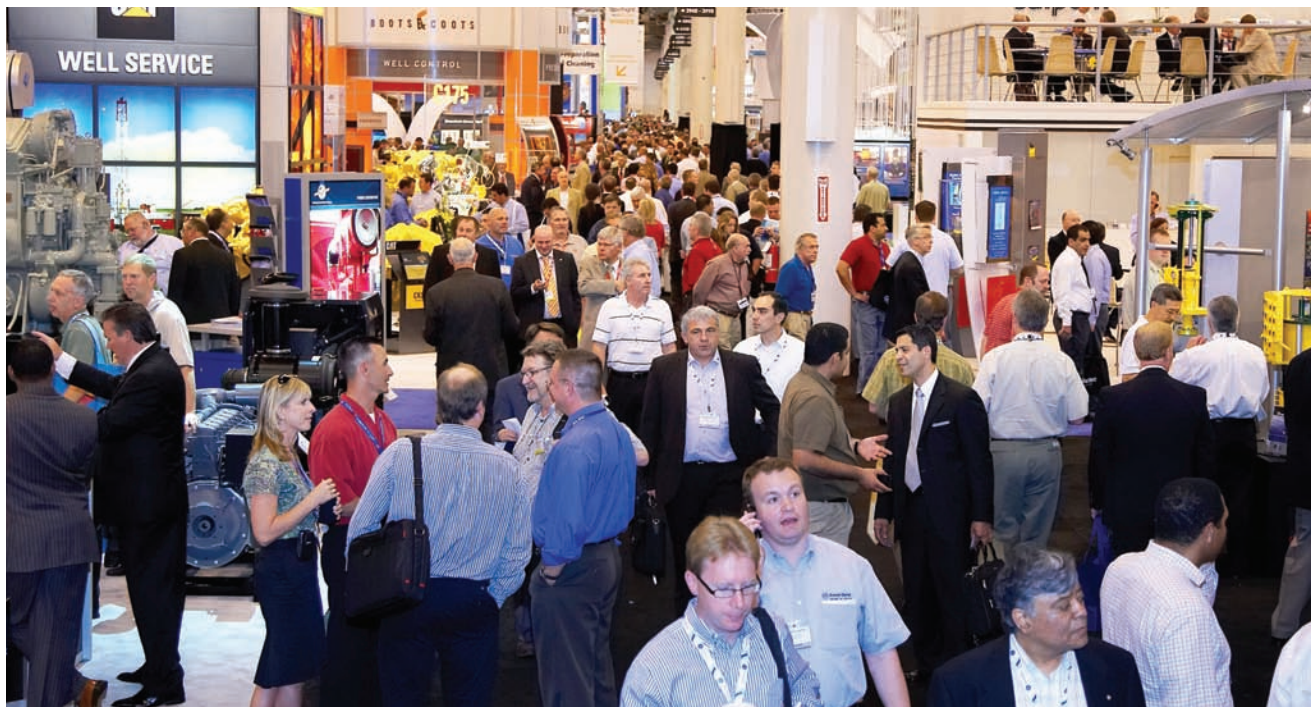


Noble

Schollnberger, retired BP technology vice president, was honored for outstanding humanitarian and community service, as well as his service to the industry, which includes serving as chairman of the Board of OTC from 1999 to 2001 and as 1994 OTC Technical Program chairman. Commenting on the incredible technological advances that have occurred during OTC's 40-year history,

he said he is confident that these advances will continue to propel the industry forward as it faces significant challenges in moving to deeper waters and Arctic environments. "Those who say the easy oil is gone have it all wrong—it has never been easy to find oil and gas," Schollnberger said. "It only looks easy when we look back through the lenses of today's technology. We did not have much of this technology when we first went into the offshore or deep water. We developed it out of necessity, and the same spirit of innovation and creativity will carry us through into the future."

The award for distinguished individual achievement went to Noble, chief naval architect for ConocoPhillips, for significant contributions to innova-



OTC attracted more than 67,000 attendees.

tive marine vehicle and floating offshore systems design and engineering. The Distinguished Achievement Award for Companies, Organizations, and Institutions recognized Sakhalin Energy Investment Company for the Sakhalin 2, Phase 2 project. The project integrated complex project facilities in a technically challenging and environmentally sensitive Arctic region. Tom Bourgeois, chief project engineer for Shell, accepted the award on behalf of the project partners, which include Gazprom, Shell, and Mitsubishi.



Pilenko

During the event, Keynote Speaker Thierry Pilenko, chairman and chief executive officer of Technip, discussed the challenges of maintaining an experienced workforce in a resource-constrained world. “The real challenge we face is how to reduce cost while preserving human capital,” he said. “The awards presented today demonstrated that without human capital, our projects do not mean much.”

He acknowledged the significant challenges our industry faces in the current economic downturn. He predicted that as financial challenges continue, capital expenditures will shrink, projects will be postponed, equipment such as jackup drilling rigs will stack up, and reductions in headcount may continue.

“The easy thing to do in the current environment is to use all tools to reduce costs, such as offering retirement,” he continued. “But this means we will have a tranch of experience leaving the industry that will not come back.”

Balancing Goals

Panel sessions were held throughout OTC on a variety of contemporary topics. A panel session on “Navigating Long-Term Business in the Face of Short-Term Uncertainty” assembled key industry leaders to discuss strategies for managing short-term market volatility with an eye on long-term business goals.

Chris Ross, vice president and leader of North America oil and gas for CRA International, examined some of the long-term unknowns and opportunities facing the industry. He predicted continued price volatility in the future. “Dealing with enormous volatility puts

a stress on all parties, but it also provides many new opportunities both outside and within the oil and gas industry,” he said. New business models will likely open up involving further integration of energy sources such as gas-to-liquids, wind power, and next-generation biofuels.

Panelist Amin Nasser, senior vice president of E&P for Saudi Aramco, said that while cycles in the oil and gas industry are inevitable, appropriate responses can modulate these cycles. “Mitigation measures must include further investment in oil production, people, and technology,” Nasser said. “There must also be an effort to improve the security of supply and demand, for all parties. This security must be a two-way street that ensures supply security for consumers and demand security for producers.”



Deaton

A service company perspective was provided by Chad Deaton, chief executive officer of Baker Hughes. Long-term global energy demand, which could be 100 to 105 million BOPD by 2030, will require greater deepwater technology investment. “The current economic pressure of the downturn can distract us from the challenges that we must address to meet this growth in future demand,” he said.

These challenges include resisting the urge to slash technology budgets, speeding up the slow adoption of new technology, reversing the dominance of price in purchasing decisions, and fostering long-term business partnerships between operators and oilfield service providers, he said.

Chevron President for Africa and Latin America, Ali Moshiri, also warned of the dangers of decreasing long-term investment in response to the recent economic downturn. “Underinvestment today will be a major problem for us in the future,” he said. “This will set up a scenario of undersupply when the global economy turns around, which will be a major problem for all of us.”

Nansen Saleri, president and chief executive officer of Quantum Reservoir Impact, asked the audience to think about the factors that play into future energy demand and how the oil and gas industry might take the lead role in

addressing them. “If the world is going to switch its energy consumption away from oil, it is not because we are running out,” he said, estimating 100 to 200 years or reasonable reserves left to be produced.

Saleri believes that the industry must be smarter about producing its remaining reserves, as historical reservoir extraction averages 35%, and consumption must get much smarter as well. Saleri sees the future energy landscape as a diverse, competitive one with several new players including niche technology companies, carbon traders, and hybrid international/national oil companies.

Managing Technology

In a session on the Management of Technology, panel moderator Robert Armstrong, Chevron professor at the Massachusetts Institute of Technology, described the three major challenges facing energy technology development as the global financial crisis, the interplay of energy supply and demand with geopolitics, and the climate change issue. He contrasted the time horizons these challenges pose on the oil and gas industry, with the financial crisis having chiefly a short-term impact that might only last a couple of years, with today’s specific supply/demand and geopolitical issues representing an impact extending over a decade, and climate change having an impact over many decades. He cited the comments of 1987 Nobel Prize winner Robert Solow, who referred to technology development as the biggest driver of economic development.

Another panelist, Manuel Terranova, senior vice president, Subsea Product Platform for GE-VetcoGray, discussed the technology needs driven by issues such as operating at greater depths, producing heavy oil, and working increasingly with gases, including handling CO₂. Citing these factors, he said, “The subsea game is becoming a material-sciences game” and he stressed the need to develop new computational tools and modeling techniques as a result. Placing rotating equipment on the seafloor will be a major trend and with that will come the need to develop effective subsea power-transmission and distribution technologies, along with power-monitoring capabilities, he said.

Wafik Beydouin, manager of Business Development for Total E&P,

said his company's technology efforts are directed primarily at improving exploration success; improving production, particularly in mature fields; efficiently and sustainably developing unconventional hydrocarbons; and reducing costs and liabilities, including the company's environmental footprint. "Innovation is the main driver of sustainable growth; it is key to our business strategy," he said.

In a topical luncheon on Managing Energy Technology for the 21st Century, Melody Meyer, newly named president of Chevron Energy Technology, said, "If you thought technology and innovation was important to your business in the high cycle, do you know how much more important it is to you in a low cycle?"

"Most analysts, most pundits, expect 2009 to be a particularly difficult year for innovation," Meyer said. "I am a strong believer, and history shows, that when the going gets tough in times like these, those who keep at it—keep innovating—are the ones who come out ahead at the end of the day. I believe that companies can create advantage from pain and from challenges and take the opportunity to transform the way we work, to position ourselves much more strongly after the hard times have passed."

Arctic Energy Potential

Arctic issues formed the basis of several sessions and talks during this year's OTC. The general session "Arctic Energy Challenges and Developments" provided a multinational perspective on how operators, contractors, and governments are assessing the challenges of energy developments in these northernmost latitudes.

Gary Mandell, executive vice president of Aker Solutions, said Aker's development of the gravity-based structure for the Sakhalin 2 project off the eastern coast of Russia highlighted many challenges, including extreme weather, limited daylight, limited local infrastructure, and flow-assurance and materials-selection issues regarding long-distance tiebacks under ice. "You must minimize people onsite and do as much prefabrication work as possible before you arrive on location," he said.

Alan Murray, product manager for Wood Mackenzie's Exploration Service, said that the resource potential is huge

in the Arctic, with 74% of the estimated 900 billion BOE of yet-to-find hydrocarbon reserves believed to be Arctic gas. Critical challenges in exploiting this potential reside in resource availability, economics, technology, and infrastructure. To offset investment challenges—particularly in the current economic downturn—Arctic opportunities must be viewed as long-term (at least 10 years or longer) investments. He sees investment opportunities in Arctic gas relying on a break-even price ranging widely from USD 4–15/MMcf and the access to reliable gas markets.

Panelist Noble, chief naval architect for ConocoPhillips and recipient of the 2009 OTC Distinguished Achievement Award for Individuals, focused on the technical challenges of working in the Arctic from an operator's perspective. In terms of technology, Noble said, "We are not starting from square one... that said, our issues in the Arctic are not just technological. We need to look at the Arctic holistically in terms of health, safety, and environmental issues as well as the local populace and their livelihood—whaling and walrus hunting, for example." Noble addressed several technology gaps that must be addressed, including the need to develop year-round shipping strategies for gas; better spills prevention, cleanup, and mitigation; and more robust and self-sufficient emergency evacuation and rescue options.

Technical Sessions

With more than 270 technical-paper presentations in 46 sessions, in addition to the general and panel sessions, authors from around the globe shared knowledge and experiences in all aspects of the offshore oil and gas industry. As an example, the Drilling Technology session included presentations covering safety, planning, performance monitoring, problem solving, and nonproductive time.

One presentation described a rotary-steerable system with a built-in mechanical caliper that can provide real-time and memory-based caliper images to aid comparative analyses on different drillbit performances and bottomhole-assembly designs. Another presentation described how optimal selection of fixed-cutter bits is complicated by the large variation in characteristics of cutting structures, in combination with

a diverse range of gauge lengths and geometries. The paper described how a set of performance indices was presented for fixed-cutter bits. The indices were derived with a mathematical model and describe performance in terms of rate of penetration, durability, stability, and steerability. Once the relative importance of each index is established, the optimal bit for the application can be selected.

According to another presentation, nonproductive time associated with drilling trouble zones consumes 10 to 40% of well-construction budgets if a comprehensive philosophy is not implemented. Other presentations during the session described an "intelligent" wired-drillpipe system used on an offshore development in northwest Australia, and how appropriate and timely proactive blowout-prevention maintenance can be performed only when accurate function-cycle data are available.

MMS Honors

For the first time at OTC, the US Minerals Management Service announced the winners of its Safety Awards for Excellence, awards which recognize outstanding safety and pollution-prevention performance by the offshore oil and gas industry. Winners included Noble Drilling, Danos & Curole Marine Contractors, Devon Energy Production, and Noble Energy.

Offshore Leadership Awards were presented to individuals whose exceptional performance has raised the bar for safety achievement, improved environmental protection, enhanced resource recovery and conservation, or inspired innovation and outstanding performance by others. Honored were Wayne Broussard, PSN/Grasso; A.J. Guiteau, Diamond Offshore Drilling; George Hagerman, Virginia Tech Advanced Research Institute; Ann Jochens, Texas A&M University; Paul Landry, Apache; Darryl Luoma, BP Exploration (Alaska); Alan Romine and John Seeger, InterACT PMTI; Chris Brooks, Merit Energy; William (Billy) Poe, Explosive Service International; Harlan King and Virgil Russell, BP America, and Al Gonsoulin, PHI. **JPT**

JPT editors Ted Moon, Joel Parshall, Dennis Denney, and Erica Shillings contributed to this report.