

Breadth of Topics Highlights OTC

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This year's Offshore Technology Conference (OTC), held in Houston 3–6 May, saw an uptick in attendance—proof the industry had survived the recession—but a somber mood as attendees monitored the *Deepwater Horizon* drilling accident in the US Gulf of Mexico (GOM).

The crowd over the 4-day conference reached 72,900, up from 67,700 last year, as attendees reviewed the latest offshore innovations and listened to a host of technical paper and panel presentations on a variety of industry topics and issues. Many speakers at the sessions expressed optimism that the GOM incident would be solved in a way that would bring the industry

more closely together to drive further innovations in safety.

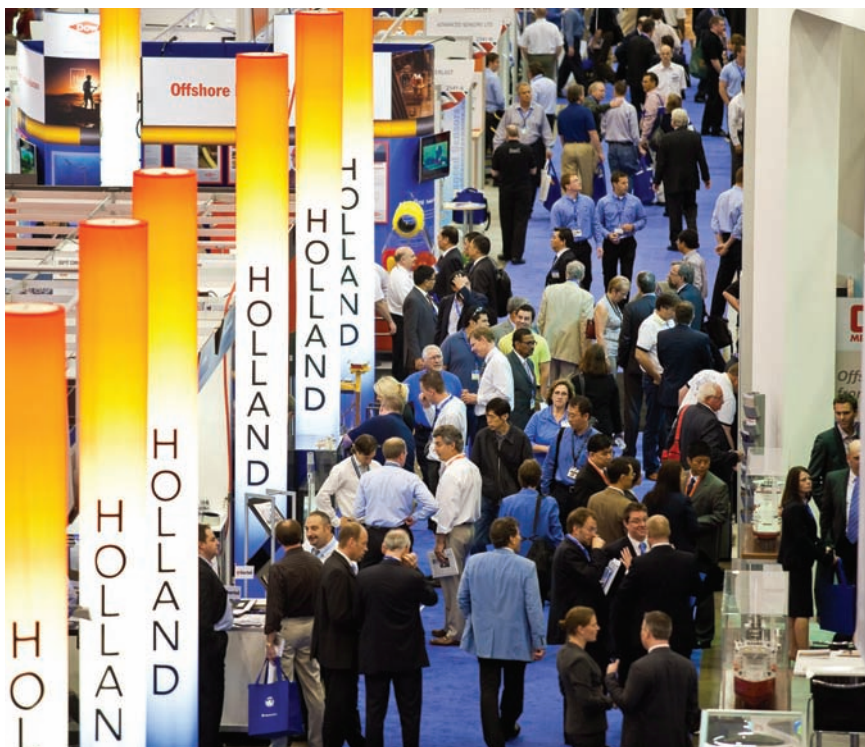
One of the key panel sessions explored global exploration activities from many perspectives. A distinguished panel representing operating companies and service companies all agreed that while challenges persist for exploration globally, there are still major lucrative opportunities for companies employing the right people, processes, and technologies.

Larry Archibald of ConocoPhillips opened the session by sharing his company's strategy for organic growth, which will include a significant role from exploration. Indeed, he sees exploration activities in areas including

unconventional shale plays and largely untapped deepwater regions such as the Bay of Bengal as playing a significant role in ConocoPhillips' future success. Archibald also sees many of the majors taking their successful technology deployments in US shale plays overseas, such as a planned ConocoPhillips project in Poland.

Jim Demarest, director of International Exploration for Noble Energy, also predicted a bright future for exploration activities, driven largely by advances in seismic imaging and processing, which shows no signs of slowing. However, he felt that exploration challenges persist, including increasingly limited access to acreage as sovereign nations increasingly want to explore their own resources. To remain competitive, companies will need to be successful at finding reserves from increasingly smaller fields; they will need to deal with volatility in pricing and in project availability; and they must be able to seamlessly coordinate their people, processes, and technologies. Finally, he advised: "If you are not really good at exploration, you are better off buying that expertise rather than trying it."

Frank Patterson, vice president of International Exploration for Anadarko, citing statistics from Wood Mackenzie, said that the average deepwater GOM discovery has reserves of 83 million BOE, and the average field size for the world from 2000 to 2009 was approximately 22 million BOE. "Today, the world consumes the equivalent of a major deepwater GOM field every day, and the US alone consumes a major world field discovery daily." Patterson said the industry will need to deliver at least 1,000 successful wells per year to deliver global energy requirements.



Attendance swelled to over 72,000, handily beating last year's figure.



Teachers toured the exhibit floor on the last day of the conference.

In reviewing his thoughts on technology developments, Jeff Spath, Schlumberger's president of Reservoir Management, said that advances in seismic imaging and processing have opened up reservoirs in ways that were not possible 10–15 years ago. "It used to be that drilling was the only way to know if you had a hydrocarbon-bearing reservoir," Spath said. "Now imaging technology has made understanding the reservoir and the fluids in it much more accessible."

The Right Energy Mix

Another panel session brought together representatives from business and government to discuss the world's desirable energy mix for the coming decades, as well as the transition pathways to arrive at affordable, secure, and increasingly lower-carbon energy.

Panelist Ahmed Hashmi, vice president of Technology Management and Finance for BP, outlined the energy challenges the world can expect in the next 20 years, and said that even though last year's global recession slowed demand, the fundamentals for demand growth persist—namely, the continuing emergence of the developing world and the migration of people into urban areas. "These factors will drive a 40% increase in global energy demand over the next 20 years," Hashmi said.

In addressing what consumers will want out of the ideal energy mix, he said that it must meet their needs and be available anytime they want it, it must have the right cost structure, and it must increasingly avoid contributing to climate change. Finally, Hashmi said that hydrocarbons will continue to contribute the vast majority—greater than 80%—of global energy, a sentiment shared by his fellow panelists.

Mohammed Al-Qahtani, executive director of Petroleum Engineering and Development for Saudi Aramco, stressed the central role that energy has played in driving the global economy. "However, speculation and overheated discussions have led to counterproductive policies" regarding future energy availability and consumption, Al-Qahtani said. "Energy is too important to have its future surrounded by uncertainty."

Phyllis Yoshida, deputy assistant secretary for the US Department of Energy, said that "strong and sensible" standards will be required that promote efficiency and drive global economic development. She also promoted the continual need for R&D and deployment of new technologies, such as nano-based materials, that provide better energy storage and transmission. For future energy technologies to make a real impact, Yoshida said that global cooperation and investment will be required.

Matthias Bichsel, director of Projects and Technology for Shell, said that the right energy mix is up for interpretation, as different people with different interests will have different definitions. For Shell, the right mix is "a balance between what is possible and good and practical," Bichsel said, adding that this mix must include a larger share of renewables.

Ali Moshiri, president of Chevron Africa and Latin America E&P, thinks the solution to meeting global energy needs lies in the power of a free market. "Markets, not governments, will tell us what the right energy mix is for a region," he said, adding that increased taxation of the oil and gas industry is not a good way to transition to other energy sources.

Brazil's Promise

Key officials from international oil companies (IOCs) gave their perspectives on the upstream oil business in Brazil in a panel session that dwelt on E&P opportunities, the tremendous production-development potential of the offshore presalt regions, and the country's proposed reform of its petroleum law. In addition to the presentations of IOC representatives, remarks were given by a Brazilian Government official and the president of the Brazilian Petroleum Institute.

Marc Antonio Martins Almeida, secretary of Oil, Gas, and Renewable Energy for Brazil's Mines and Energy Ministry, opened the session with an overview of Brazilian E&P and an explanation of the new petroleum law. He reported that there are 76 E&P companies operating in the country, including 37 IOCs or foreign national oil companies. Brazil's oil reserves of 15 billion bbl equate to 17.4 years of current-rate production, he noted, with the presalt areas having potential to increase reserves to 31 billion bbl. The recent presalt Franco discovery could be the largest well ever in the country, he said. Presalt reserves have the potential to lift Brazil to the position of 12th largest or eighth largest world oil producer, depending upon future drilling and development results, Almeida said.



Thirteen companies received Spotlight on New Technology Awards in a special ceremony on the first day of OTC.

Joao de Luca, president of the Brazilian Petroleum Institute, a private, nonprofit industry organization, acknowledged that companies can work effectively under concession or production-sharing-contract terms but noted that his organization does not agree with the proposed new petroleum law. A moderator of the session, along with Alvaro Negrao, Global Offshore Drilling and Completions manager, Repsol, de Luca said that it is better for private companies, inside Brazil as well as outside, to be able to take part in development activities as operators, to cultivate the relationships and bring in the new technologies they would as operators. In 12 years of operating under concession rules, after the Petrobras monopoly was ended, “we had great success,” de Luca said, adding that the power that is proposed for the national oil company, PPSA, is “so huge it is embarrassing.”

Panelists focused on both individual upstream projects and the bigger picture. Nelson Silva, Brazil vice president, BG Holdings, said that Brazil could be the source for as much as one-third of the company’s production by 2020. The presalt will be a key challenge for Brazil. The Tupi project alone could require 200 to 300 wells at costs averaging USD 100 million each. BG is working on

some of the “huge logistics challenges” affecting presalt development, Silva said, such as pipeline-to-shore gas transport and liquefied-natural-gas development, both floating and onshore.

Wes Lohec, president, Chevron Latin America, discussed the offshore Frade project, which came on stream last year in the Campos basin. Situated in 1200 m of water, Frade is giving Chevron its first production in Brazil. Current output stands at 60,000 BOPD, with peak production anticipated at 100,000 BOPD during 2011. “The opportunity in Brazil is very, very significant and growing all the time,” Lohec said.

Ramon Hernan Paadin, managing director, North America and Brazil, Repsol, expressed support for Brazil’s requirement that 1% of production income be devoted to funding research, and said that Brazil’s tax and royalty system “has proved to be very good to attract foreign capital,” and applauded the news that a new bidding round was expected soon.

Jorge M.T. Camargo, senior adviser, Statoil Brazil, and board member of IBP, said that Brazil has a slate of opportunities in deep water, heavy oil, and the gas-value chain that fit Statoil’s portfolio. He discussed Statoil’s Peregrino

heavy-oil project in the Campos basin, scheduled to come on stream in early 2011. With anticipated peak production of 100,000 B/D, it will be one of the largest IOC-operated fields in Brazil.

Topical Talks

Topical breakfast and lunch sessions during OTC covered a wide area of industry issues. In a talk titled, “The Shape of the Oil Industry to Come,” consultant and author Chris Ross predicted that the oil industry has “a series of rolling crises to look forward to.” Ross is an oil and gas industry consultant with Charles River Associates and author of the book *Terra Incognita*, which examines the future of the “post-modern oil company.”

World population growth, global economic expansion, and increasing demand for personal mobility fueled by emerging economies will continue to generate unprecedented pressure on the industry, according to Ross. “All of that means to us that the shareholder-value proposition that oil companies offered in the past may not be appropriate for the future. There may well be a need for new corporate strategies, and that will include portfolio revitalization and more attention to risk, followed by execution in driving down costs of high-cost resources,” Ross said, noting that a time of change such as the present requires extraordinary leadership.

Strong perceptions about resource scarcity, not necessarily based on the subsurface but stemming from rational decisions of major resource-owning countries to stretch out production to meet long-term national objectives, has spawned a widely held view that energy should be decarbonized through options such as nuclear and solar power. “But there is another way,” Ross said, emphasizing the vast expansion prospects for affordable natural-gas supplies unlocked from tight shales by advanced horizontal-drilling and hydraulic-fracturing technologies.

Lessons From the Recession

Another topical lunch session examined business cycles and how the best companies learn and improve from them. Underlying that improvement is a realization that recessions change things—your company, your clients, and the market, Steve Knowles, presi-

dent of Mustang Engineering, said during his talk on “The Silver Lining of a Recession.”

“During a recession, the world shifts, so we have to figure out what works,” he said. In other words, there is a “new normal,” he added. Mustang, for

instance, had 5,000 employees 2 years ago and now has 3,500, and the company’s clients have changed as well. “That is the new normal for us,” he said.

To find out what the new normal is, a company must examine its core values and mission, its people, its orga-

nizational structure, and the markets to see what has changed and what needs to change, Knowles said. A firm has to take a look at its business model and how it differentiates itself from competitors, he added. “Recessions expose weaknesses and successes,” he said.

Knowles said that *Harvard Business Review* conducted a study of how 4,700 public companies reacted to and were affected by the recessions of 1980, 1990, and 2000. The study concluded that 9% of companies emerged from recession stronger than before and that 85% of the “market leaders” were dislodged by the economic downturn. Recessions are “times of opportunity,” Knowles said, which require a focus on efficiencies and an examination of what is going on both inside your company and outside of it. “Just as seasons serve a purpose, so do business cycles, and if we can embrace that, we will be better off.”

Distinguished Achievement Awards Honor Individual, Companies

Two Distinguished Achievement Awards were given out at this year’s OTC. The first, an individual award, went to Hubert Elkins, who has spent more than 50 years in the offshore oil industry and pioneered the industry standard of 6 ft-radius technology for subsea-wellhead guide bases and blowout-preventer-stack guide frames, which permitted industry interchangeability of subsea equipment. Elkins, who spent more than 20 years in executive engineering posts at Hydril and served as director of business development for National Oilwell Varco prior to his retirement, currently serves on the board of directors for the Offshore Energy Center in Galveston, Texas and is an adviser to the Research Partnership to Secure Energy for America.

The second award—for companies, organizations, and institutions—went to Anadarko Petroleum and Enterprise Field Services for the development and construction of the record-setting *Independence Hub* in the Gulf of Mexico (GOM). Representatives of both companies accepted the award, and acknowledged the collaborative team of thousands of individuals from many contractors and equipment suppliers in making this first-of-its-kind ultradeepwater gas hub a reality. The development provided access to reserves that were previously considered economically unfeasible and boosted natural-gas supplies from the GOM by 10%.

The keynote speaker for the awards event, Noble Energy’s Chairman and Chief Executive Officer Charles Davidson, shared his thoughts on the industry’s success rate of turning projects that were once considered impossible into realities today. “Time and again, the industry has achieved tasks that were deemed impossible, then looks back afterwards and asks, ‘How did we do that?’” Davidson said.

The industry has a tendency toward “last data-point engineering,” postulating what will happen in the future based on the last data point collected, he said. But he says we must resist this temptation to achieve step-change success. “Our willingness to take on the impossible has led to immense change and success,” he concluded.



Hubert Elkins

Saudi Development

The challenges facing Saudi Aramco over the next 5 years, as it prepares for further growth, were the subject of a luncheon address by Zuhair Al-Hussain, the company’s vice president of Drilling & Workover.

Al-Hussain began by reiterating Saudi Aramco’s commitment to maintain 1.5 to 2 million BOPD of spare production capacity to modulate fluctuation in demand and maintain market stability. The company is just coming off a massive expansion program during 2004–09, in which it developed an additional 2 million BOPD of production to bring its oil output to 12 million BOPD. Highlighting this push was Saudi Aramco’s development of the Khurais field, which came on stream in 2009 at a rate of 4.2 million BOPD of Arab Light crude oil. It is the largest development of its kind in the industry, including more than 300 horizontal and multilateral wells, and the largest digital oil field developed to date.

Looking ahead, Saudi Aramco plans the development of the Manifa field in the Arabian Gulf with an anticipated capacity of 900,000 BOPD of Arab Heavy crude oil. “This would make it the largest single offshore development ever,” Al-Hussain said. **JPT**

For more of JPT’s coverage of the 2010 OTC, go to www.spe.org/jpt/cat/blogs.