

Second IPTC Addresses Challenges of Project Execution, Talent Shortage

John Donnelly, *JPT* Editor

The second International Petroleum Technology Conference (IPTC) attracted attendees from 71 countries in a wide-ranging event covering both upstream and midstream technology and contemporary industry issues. Sponsored by four associations—SPE, the Society of Exploration Geophysicists, European Association of Geoscientists and Engineers, and the American Association of Petroleum Geologists—the conference featured more than 300 presentations as well as panel sessions addressing topics from E&P strategy to global responsibility and an exhibition of 81 companies.

Held in December in Dubai, this was the second IPTC, following on the 2005 event in Doha. This year's conference attracted 3,797 attendees, up from 2,533 attendees from 47 countries at the inaugural conference. As with the first IPTC, the second conference featured leading industry executives from the Middle East, Asia, Europe, and the Americas. The third edition of IPTC will be held 3–5 December 2008 at the Kuala Lumpur Convention Centre as the conference moves from every other year to annually.

The opening keynote session, "Energy Issues for a Changing World," highlighted several current challenges facing the oil and gas industry, including the relationship between international oil companies (IOCs) and national oil companies (NOCs), access to resources, and environmental and public policy. Moderator Tony Hayward, BP's new group chief executive officer (CEO), led the panel, which included H.E. Mohamed Saleh Al-Sada, minister of state for Energy and Industrial Affairs in Qatar; Abd Allah S. Al-Saif, senior vice president for Exploration and Production at Saudi Aramco; Red Cavaney, president and CEO of the American Petroleum Institute (API); Chad Deaton, CEO of Baker Hughes; and Daniel Yergin, chairman of Cambridge Energy Research Associates.

Hayward noted that current high oil prices are a powerful reminder of economic progress, representing rising standards of living throughout the world, but that demand is putting a great strain on resources. The period from 2001 to the present has been the fastest global economic growth since the 1960s, he said. "Our industry is at the very heart of that progress," he added. For the past 30 to 40 years, IOCs have been on the frontiers of upstream development, in places such as the North Sea, in deep water, and in geopolitically challenging areas, Hayward said. "They have been living on the edge and doing the difficult stuff," he added.

Yergin, who won a Pulitzer Prize for his seminal oil industry history *The Prize*, said the relationship between NOCs and IOCs is changing, and that relationship is critical to the future of the industry. Each brings different values to the table, but both have a common interest: to ensure the availability and stability of supplies. One chal-



Al-Saif

Deaton

Hayward

Yergin

lenge they share is escalating downstream and especially upstream costs.

Even though this short-term price volatility is dominating the headlines, the industry must keep its focus on the long term, Yergin said. Other issues the industry must keep a close eye on are the surge in China and India demand, how government policies are responding to the price rise, and the climate-change debate.

Not All NOCs the Same

Al-Saif noted that not all NOCs are the same. Some are producers and some primarily consumers; some are engaged primarily in oil, some in gas; some operate similarly to IOCs, and some are more government-controlled. Some NOCs have need for upstream or downstream collaboration.

"There are many areas where IOCs and NOCs are working together, but they need to understand the needs of each other," he added. "I have no question that the two will work together in the future as long as they complement each other according to the needs that arise."

The relationship is evolving and is not the same as it was 30 years ago, he said. There are more joint ventures now than production-sharing contracts, an example of better collaboration between the two, he added.

Al-Sada said that NOCs and IOCs have more in common now than they had in the 1960s and 1970s. But NOCs appear to have the upper hand now because of their resource base, he added.

Offering a service-company perspective, Deaton said the traditional definition of IOC and NOC is becoming blurred. Petronas and Petrobras, for example, operate like IOCs. "The traditional NOCs are starting to become real users of technology," he said.

That means NOCs are willing to take on more risk. NOCs may have specific problems they are trying to address and are looking for technology to solve the problem, which requires NOCs to work more closely with the service sector on research and development. IOCs will continue to play a major role in energy development in the future, he added, because of their technology know-how and project-management capabilities.



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A Tipping Point

The panel thought that the climate-change debate, and how that debate affects the industry, is reaching a critical phase. This past year may have been a “tipping point,” said Hayward, because US citizens began paying more attention to the issue. That, and the sharp rise in oil prices, has put the spotlight on the energy industry in the popular press. Yergin agreed, predicting that by 2009, the US would have a climate-change regime in place.

Among consuming nations, energy policy appears to be driven by climate change and security of energy supplies, and lawmakers must strike a balance between those two, said Cavaney of API. The industry has a responsibility to “tell the energy security story,” he added. “It is abundantly clear that our industry is indispensable in this dialogue,” he said.

A coherent energy policy for consumers, Hayward said, should include provisions for diversity of supply, which is not the same as energy independence, and for use of alternative sources of energy such as nuclear; should drive efficiencies such as reducing CO₂ emissions; and maximize domestic resources.

The current shortage of technical talent and what to do about it also entered the panel’s discussion. Human resources have risen to the level of “strategic importance,” Al-Sada said. To attract more young people to the industry, it may need to pay higher salaries, offer more flexible work schedules, and increase efforts to recruit female talent, he said. He also recommended that the industry develop training programs for high school graduates and work to improve relationships with higher-level educational institutions.

The industry’s “capability shortage” encompasses staffing, technical capacity, and competency, Deaton said. Although the industry is on the cusp of a great retirement wave, the talent to staff the industry exists “but we have to find it, nurture it, and train well,” he said. Deaton agreed that the industry needs to reach out more to schools and students, including younger students, and convince them that they would have a bright future if they joined the oil and gas industry.

Hayward predicted that the people shortage would get worse before it gets better. The continuing internationalization of the industry will help, he said, as countries such as China and India produce more engineers.

As the energy industry ponders all of these issues and looks ahead, it should remember the lessons of history, Yergin said. In his research, he has concluded that the two most important characters in the history of the oil industry have been supply and demand. And the industry should not discount the role of surprise and shock either. Often it has been the unexpected that has dramatically changed the industry’s role in the world, he said.

Focus on Health, Safety, and Environment (HSE)

Another executive panel session, on “Delivering HSE Excellence,” included discussion on how best to incorporate positive health, safety, and environmental values into business strategies and practices. Sherri Stuewer, vice president of Safety, Health, and Environment for ExxonMobil, outlined the key characteristics of an operations integrity management system framework that identifies how procedures should be

Awards Highlight Project Excellence

Five projects received Excellence in Project Integration Awards at this year’s IPTC. The awards highlight projects that excel throughout the entire value chain. The winners were

- **The Independence Project—Anadarko Petroleum and Enterprise Products.** First production from this record-setting US Gulf of Mexico project was achieved last July on schedule and within budget. Located in 8,000 ft of water on Mississippi Canyon Block 920, 123 miles southeast of Biloxi, Mississippi, the Independence Hub is the deepest production platform ever installed and also the world’s largest offshore natural-gas processing facility.
- **Angola Block 17 Rosa Development—Total E&P Angola.** The Rosa field, discovered in 1998, lies in Block 17 about 135 km off the coast of Angola in water depth of 1350 m. Rosa became the first deepwater field of its size to be tied back to a remote installation in such water depths. The development will include 25 wells—11 for water injection and 14 producers tied into four manifolds.
- **Champion West Project—Brunei Shell Petroleum.** This field was discovered in 1975, but deposits were too scattered beneath the seabed to make drilling economic. But 2 years ago, Shell developed a “snake well” approach that led to the opening of the field. The snake wells bore horizontally below the seabed before hitting computer-modeled targets.
- **Haradh III—Saudi Aramco.** The development of Haradh III, which lies in the southern area of the Ghawar complex in Saudi Arabia, involved the integration of four main technologies: maximum-reservoir-contact wells, smart completions, real-time geosteering, and intelligent-field initiatives. Production from Haradh I began in 1996, followed by Haradh II in 2003, and Haradh III in February 2006.
- **The Azeri-Chirag-Guneshli (ACG) Program—BP.** This Caspian project is a production line of integrated project delivery. The ACG field contains at least 5.4 billion bbl of recoverable oil, lying 120 km off the coast of Azerbaijan in 120-m water depth. Production began in 1997.

The awards were presented during the IPTC banquet by Farouk Al Zanki, chairman and managing director of Kuwait Oil Company, and Tony Hayward, CEO of BP.

performed and who is responsible, gives appropriate metrics to determine if the process is working, and offers a feedback process to ensure improvement.

Mohamed El-Sherbini, manager HSE for Abu Dhabi Marine Operating Company, said HSE should be a part of detailed contingency plans for major projects. That was the case during a recent shutdown of the Umm Shaif field. That required 2 years of planning with strong input from field personnel and a risk-management program that included specific HSE procedures. In this particular project, budget, schedule, and HSE targets were all met.

“Behavior-based safety” allows staff to work with management to monitor safety and reduce possible problems, said Bud Bierhaus, senior area manager, Southern Gulf Countries, for Halliburton. “It’s not a buzzword. Many people talk it, but few know it,” he said.

Such a system requires safety statistics, audits, action plans, coaching, and mentoring to help build a behavior-based culture. “We want to find the unsafe act the day before it occurs, not talk about it the day after,” Bierhaus said. Halliburton rolled out this system because a client in California requested it, he said. The company now has used it for 8 consecutive years, achieving annual improvements.

Staffing shortages are putting pressure on HSE programs. Among the challenges facing the Middle East now are great growth in oil and gas projects with aging facilities and installations, said panelist Nasser Mubarak, manager of Corporate HSE Support for Qatar Petroleum. That has caused an influx of semiskilled labor amid a limited pool of HSE professionals in the region.

That makes it critical for companies to examine projects proactively before they begin, said Hans Erlings, CEO of Galfar Engineering and Construction, to ensure that valuable resources are not wasted or distracted. For service firms, delivering to a client means paying attention to HSE as well as reaching time and budget goals, he added.

Energy Constraints

Some of these challenges facing the industry were taken up in an additional panel session titled “Responses to Constraints in Meeting Energy Challenges.” A political perspective came from Giles Chichester, president of the European Energy Forum and a member of the European Parliament. European Union (EU) energy policy focuses primarily on competitiveness, security of supply, and sustainability, he said.

When Gazprom cut off gas supplies for a short time in 2006, it “sent a profound shock throughout the EU,” Chichester said, because there was a realization that supplies could be affected by things other than terrorist attacks or market forces. The EU imports oil from more than 20 sources, but one-third of it comes from Russia.

Climate change remains a major challenge for the EU, Chichester said. The EU’s goals are to increase alternative-energy use, including the use of biofuels in transportation; reduce CO₂ emissions; and increase energy efficiency, he said. Emissions trading eventually may help the EU reach its goals, but the system needs to run more efficiently for that to happen.

One of the biggest constraints for management is trying to make long-term decisions in light of a highly volatile oil

market, said Ladislav Paszkiewicz, president Middle East for Total. Compounding this are high material costs, shortages of technical talent, higher expectations from host countries in terms of socioeconomic development, and more stringent environmental constraints. The industry clearly needs “better detection mechanisms” for spotting talent because IOCs need new sources of personnel, he added.

Project Execution

In a panel session on “Billion Dollar Project Execution,” several large operators walked the audience through the challenges that megaprojects face and how some projects were completed successfully.

Jean Marie Guillermou, senior vice president for Development and Operations Techniques for Total, noted that IOCs now have fewer business opportunities and increased competition from NOCs and some new independents. Projects have become more complex, bigger, more costly, and more global in scope. In the current environment, project-management issues are now more of a challenge than financing. It is critical that IOC projects match host-country expectations during implementation, he said. That often means developing and recruiting local talent and undertaking corporate-responsibility initiatives and local community development, he said.

Jerry Wolahan, ExxonMobil Development’s vice president for Middle East Projects, said the growth in size of these global projects will require multiple partners and many hours of planning before any equipment is put in place. ExxonMobil’s launch of major projects will grow from seven in 2006 to 63 in 2010 and beyond, he said. Because the risk and scope of projects vary, no one contract strategy fits all, he said. Companies should assess projects independently and then tailor a contract strategy to fit.

Saudi Aramco’s Mohammed Al Juwair, general manager of Area Projects, said his company emphasizes several matters in project implementation, including front-end planning, lessons learned and best practices, effective contracting strategies, equipment innovation, and long-term purchase agreements. Of Saudi Arabia’s planned projects, 44% involve oil, 41% infrastructure, and 11% power, he said. The biggest one will be the Ras Tanura integrated refinery and petrochemical project.

The Shortage of Talent

The industry’s labor shortage dominated a panel session on “Meeting Our Global Responsibilities to People and the Industry—Development, Diversity, and Demographics.” Alain Gringarten, chairman of the Petroleum Engineering Department at Imperial College, London, said the industry’s personnel shortage has been known for some time. Industry staffing requires a long-term approach to ensure an adequate supply of workers, he said, because there is a lag between industry needs and the time it takes a student to graduate.

The industry can build trust with students if it continues to recruit from universities even when the price of oil drops, added Aion Marziah Wahi, chair of the Board of Directors at Universiti Teknologi and vice president of Human Resource Management for Petronas. Petronas has increased employment of people from outside Malaysia at its company by sponsoring students at the university, she said. **JPT**