

Conventional Exploration and Production: Tight Supply-Demand Gap Drives Focus on Efficiency

RESEARCH BRIEF

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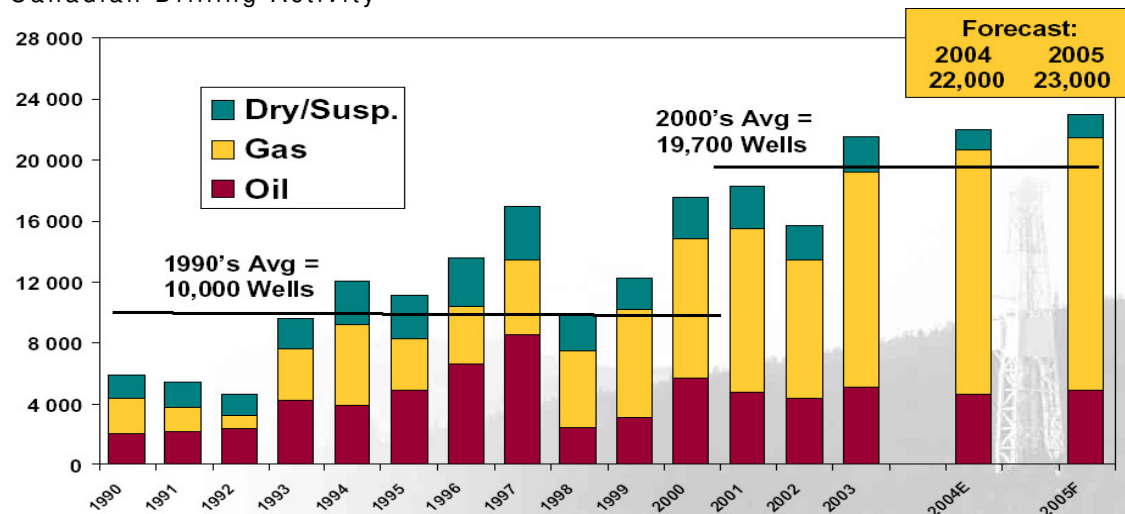
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SITUATION OVERVIEW

Driven by a global supply-demand imbalance, industry assumptions regarding the long-term price of energy, have undergone a fundamental shift that is particularly evident in Canadian production activities. Producers are increasing drilling activities, applying secondary and tertiary recovery methods, and intensifying their focus on improvements in utilization and supply increases. At headquarters, organizations are examining acquisitions, creative partnering, and corporate processes to drive rapid improvements in operations efficiency. In an environment constrained by labour, equipment, and infrastructure, both field and headquarters activities are targeted at quickly increasing production levels. Due in part to demand for cleaner fuels, there has also been a change in the proportion of new wells drilled for gas, an important input to the increased levels of oil sands production.

FIGURE 1

Canadian Drilling Activity



Source: CAPP, 2004

Several other shifts have occurred in Exploration and Production (E&P) as a result of current energy pricing and shortages:

- This business environment is lowering the importance of geographic and geological factors in making site decisions. Producers are taking on more remote and complex projects, and are approaching them in very innovative ways. For example, producers are selecting more sites for development that require heli-lifting equipment.
- Producers are implementing advanced wellhead and plant monitoring equipment at more sites, moving toward a "digital oilfield" concept, to reduce the need for personnel to frequently travel on the limited transportation infrastructure.
- Acquisitions and "swaps" for land that are conducive to quick development or closer to existing resources are occurring frequently.
- Producers are more willing to offer shared opportunities with their Service & Supply partners in outsourcing agreements to help retain their extended staff. In addition, some producers are buying their S&S partners outright as a solution to their labour shortages.

Among the largest corporations in Canada, oil and gas producers are engaged in highly visible and inherently dangerous activities. Positive stakeholder relations are an important factor in the producers' expansion plans. Safety has increased significance in light of its impact on stakeholder relations and labour shortages.

RESEARCH FINDINGS: STRATEGIES

The industry assumption of high energy prices with continuing shortages has led to a series of creative responses to meet expanded production goals. These include:

- **Implementing more advanced/improved processes to analyze market opportunities:**
 - Integration of geology and geophysics information and applications to enable the rapid analysis of high volumes of heterogeneous data.
 - Advanced site selection processes that take into account more factors including integrated geology and geophysics information and development resource availability.
 - Acquisition analysis processes that allow rapid analysis of total land and work capability portfolios.
- **Entering into more complex partnering arrangements to achieve production goals:**
 - Using advanced partner management to mitigate risk. Some producers report implementing targeted supervision to enable the use of otherwise unacceptable supply firms.
 - Offering training and access to IT resources that may be difficult for smaller partners to create on their own. Solving partners' resource deficiencies even when they create dependencies is often seen as mutually beneficial.
- **Complying with Health, Safety, and Environmental Regulations.** Health, safety, and environmental (HSE) issues impact companies in many ways. Given labour shortages, reductions in lost time incidents has immediate business benefits beyond the workers' well being. Most producers have plans for increased production. They cannot afford the lost time associated with increased scrutiny of their activities by regulators or stakeholder reluctance to fund or concur with expansion (please see the Safety paper in this series).
- **Improving Stakeholder Relations.** Positive stakeholder relations can ease increased levels of production. Effectively communicating with stakeholders as early and completely as possible is seen as a key task in facilitating expansion plans. Common actions intended to improve stakeholder relations include providing more opportunities for input, more effectively using information provided to producers, and timely communications.

- **Examining internal processes for speed and efficiency.** At today's prices, E&P companies have less tolerance for the heightened impact of inefficiencies on potential revenue. Anything that speeds decision-making and allows production to come on-line sooner is likely to be examined closely.

RECOMMENDATIONS

Shortages in labour, equipment and adequate infrastructure combined with the desire for a rapid expansion of production in a "target rich" market place are driving the need for efficiency improvements in many areas. Despite challenges, producers can reach higher levels of output and greater profitability by incorporating a number of creative strategies. Based on the research findings, Energy Insights recommends:

- **Increasing the use of advanced project management and supply chain management applications.** Projects in all parts of the organization are becoming more complex. Safety, speed, partnering, and resource constraints have all added to the balancing act that characterizes today's projects. Producers should focus on acquiring tools that can help facilitate more complex decision-making using cross-enterprise information.
- **Improving levels of applications and business process integration.** Integrating "stove-pipe" applications will streamline operations and reduce workloads. Linkages between field systems and back office systems can drive higher levels of productivity. For example, work order systems should be linked to core business applications (e.g. ERP) to optimize scheduling and procurement. To avoid future integration workloads, new systems should be selected based on their breadth of functionality and ease of integration with existing IT systems.
- **Expanding the use of remote sensors and real-time communications to improve operational efficiencies.** Producers should consider moving toward a "digital oilfield" concept that supports a rapid measure-model-decide-execute cycle. Several technologies can support this new concept:
 - Wellhead, pipeline and plant monitoring with SCADA systems should be used to provide predictive information to field personnel and enable immediate notification to all stakeholders of any hazardous situations.
 - Use of automated control should be expanded to reduce the need for additional field personnel, reduce the impact of

transportation limitations, and allow the development of more remote and environmental sensitive areas.

- Vehicle position monitoring should be used to optimize scheduling efficiency and as an adjunct to worker safety monitoring. Privacy considerations will need to be balanced to ensure high acceptance by the workforce.
- **Investing in document and content management systems.** Document and content management should be a key focus of producers. Better access to information is critical to improving communication with workers, partners, and other stakeholders. Document and content management projects should focus on automating content creation, management, and providing broad access. Producers should ensure that advanced levels of security are to be embedded in their document and content management solutions to manage risk while facilitating legitimate access.

NEXT STEPS

To become part of this research study and benchmark your organization against others in the study group, please contact TELUS Business Solutions at www.telus.com/energysector.

METHODOLOGY

TELUS Business Solutions sponsored this research study. Nine executive interviews, conducted in November and December 2005, were with senior business executives who work at Canadian producers. Respondents were screened and qualified based on decision-making authority and the scope of activity within their organizations. Filigree Consulting, on behalf of Energy Insights, conducted the telephone interviews.

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