



Photo: Devon Canada
Location: Jackfish Two SAGD project

Northeastern Alberta's oil and gas industry took a pounding over the 2008–2009 winter season. Some service sector layoffs have occurred in the region, reports John Letwinetz, a veteran oilfield supply manager and past president of the Bonnyville Oilmen's Society. "We've seen a 30 per cent decline in activity," Letwinetz estimates. "At this point, the natural gas side has been hit a lot harder, but heavy oil and bitumen activity will suffer seriously if oil prices fall to the low US\$30s or high US\$20s [per barrel] after spring breakup."

IN THE

Fortunately, the spot price for WTI light crude rose from the US\$30s to the US\$40s in late February, while light oil for September delivery fetched US\$50. If the market can hold within that range, the following factors will be key to the oilpatch in Alberta's bitumen-rich northeast:

- Most heavy oil companies using primary production methods recovered their operating costs at this winter's prices, although higher prices will be needed to stimulate much drilling activity. In fact, some heavy crude wells and marginal gas wells in need of maintenance were shut in because returns did not justify the additional investment.
- At those same crude prices, thermal recovery projects appear able to maintain

their current productions. However, new capital projects will require stable WTI prices in the order of US\$55-US\$65 per barrel to proceed.

- Although some producers—including Shell and Canadian Natural—have scaled back capital spending on northeastern heavies, others (e.g. EnCana and Devon Canada) are proceeding with expansions to their existing thermal projects.

Dick Gusella, president of Connacher Oil & Gas Limited, has spent months fighting to maintain production at his company's Great Divide SAGD (steam assisted gravity drainage) project. "December was a real pig," he says. (When asked how long he's been an oilman, Gusella responds, "I'm coming up on 100 years, but these days it feels like it's been a lot longer.") Connacher's concerns mirror the difficulties facing all thermal bitumen recovery projects.

"Credit is not available these days in our industry, and investment capital comes with unattractive terms if it's available at all," Gusella says. "No one knows how long these conditions will last. I am truly grateful that our company has \$180 million in cash or we wouldn't be able to weather this storm. Today, the first three

financial operating principles are liquidity, liquidity, and liquidity. The fourth principle is to protect your assets."

In Connacher's case, asset protection includes hanging onto skilled employees and maintaining the underground steam chamber at Great Divide. (SAGD production depends on injecting steam to heat a portion of bitumen in the reservoir, which enables the tarry crude to flow into horizontal wellbores.) If an operator stops injecting heat into the formation, the steam that's already there will cool. "In that case, you will be producing water for a year from those horizontal wells when you start up again, and there could be formation damage as well," Gusella says.

On Dec. 15, Connacher announced that it would stop injecting steam at Great Divide Pod One to avoid bleeding cash. Light crude prices had hit drastic lows. Worse, big upgraders didn't want additional bitumen, so the price spread between light and heavy crudes widened to a crippling \$22/bbl. Fortunately, Connacher renegotiated with its suppliers (notably its truckers), and the company found an upgrader willing to buy forward at an attractive fixed differential (in part thanks to higher forward prices for crude in general).

Great Divide's output reached nearly 10,000 barrels per day (bbl/d), then plunged to 5,000 bbl/d after steaming was curtailed, and has now climbed back to 7,500bbl/d. The company expects to achieve full production of 10,000 bbl shortly unless market >



BLACK

At current crude prices, most heavy oil and bitumen operators are cash positive and some capital projects will proceed.

by Mike Byfield

conditions again deteriorate. Over the past year, its operating costs have dropped dramatically, to the \$16-\$20/bbl range, and are expected to decrease further as production continues to increase.

“Raw bitumen is hit with diluent and chemicals before it gets processed, to help knock out the water. Through trial and error, our team has come up with the optimum chemical cocktail—every SAGD project requires a unique mix,” Gusella says. To boost production, Connacher has drilled a couple of new wells offsetting its best producing pair (1,200 bbl/d, with a steam to oil ratio of two to one) at Pod One. However, the company will not proceed with constructing a second pod until light oil prices stabilize above US\$55/bbl and the light-heavy differential is attractive.

Devon Canada Corp. will proceed with a billion-dollar project to twin its Jackfish One project, 15 km southeast of Conklin. About \$350 million will be spent this year at Jackfish Two. Tanks and pilings are now being installed, says company spokeswoman Tracey Thompson. First oil is scheduled for 2011, and full production of 35,000 bbl/d by the following year.

Meanwhile, Jackfish One reached 22,000 bbl/d in December, and is expected

to achieve 35,000 bbl/d during the first half of 2009. “There’s been some discussion about Jackfish 3, but no details are firm yet,” Thompson says. She notes that each Jackfish phase should produce for 20 to 30 years, “so the low price of oil this year isn’t a major factor over the life of a project.” Devon Canada, whose Oklahoma-headquartered parent is a large independent, doesn’t face the cash constraints of a smaller player like Connacher.

At this point, EnCana Corp. plans to proceed as scheduled with its SAGD projects at Foster Creek and Christina Lake, north of Bonnyville. “We will be looking at all of our long-range projects across the company to determine the pace of development going forward,” says EnCana spokeswoman Carol Howes. “We are in the midst of doing that exercise now, and it’s too early to say whether there will be any changes to any of our longer-term plans.”

EnCana’s current production capacity at the two SAGD sites is 78,000 bbl/d. Two expansions at Foster Creek should add about 60,000 bbl, and are slated to begin steaming this spring. At Christina Lake, a now-completed expansion is producing 14,000 bbl/d, which should increase to 18,000 bbl/d. Construction of the next

phase at Christina Lake is scheduled for completion in 2010, with a production target of 40,000 bbl/d in 2011. “We are also working towards project sanction for the next phase of expansion for Christina Lake,” Thompson says.

Harvest Energy Trust pumps about 14,000 bbl/d of heavy oil, with properties from Provost in the south to Elk Point (40 km south of Bonnyville). “About a quarter of our total production is heavy oil,” says Harvest president John Zahary. He ranks light and medium oil as the trust’s most profitable commodities at this time, followed by natural gas and then heavy oil. “In December the wellhead price for heavy crude was about C\$25, which leaves a very thin net after royalties and operating costs,” the Harvest CEO comments.




Beyond low crude prices, producers face the ongoing debate over climate change, with newly-elected U.S. President Barack Obama and Prime Minister Stephen Harper promising aggressive, coordinated policies to reduce greenhouse gas emissions. “Fortunately, the provincial royalty increases that were introduced by Alberta in January do not have much effect on heavy oil,” Zahary comments. “Altogether, though, our industry has never faced >

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greater regulatory uncertainty. We'll see significant cutbacks in heavy oil drilling this year. It's already begun, and I think it's going to get worse."

Public policy makers are now discussing an emissions trading system under which petroleum producers and other industries would buy credits that permit them to emit carbon dioxide. According to many scientists (although not all), CO₂ and other greenhouse gases are believed to be triggers for potential global warming. "Governments have been waffling on the climate change file for years," says David McColl, a senior economist with the Canadian Energy Research Institute (CERI). "Alberta and producers have both resisted carbon trading as a form of tax. However, at this point, the energy sector is probably more concerned to know what the cost will be. Capital investment will be impeded until there's regulatory certainty."

Vista Projects Limited specializes underground bitumen recovery techniques. Richard Campbell, managing principal of the Calgary-based firm, says SAGD enjoys benefits over surface oil-sands mining, including dramatically less surface disturbance and shorter project timelines. "An oilsands mine takes five

or six years to put into operation, a SAGD project about three years," he comments. "Because the reduced time frame significantly reduces capital risk, it's easier for SAGD investment to proceed."

At this point, Campbell points out, virtually no one has much confidence about what oil prices will be in six months. "However, many producers feel prices are bound to recover within three years," he says. "Because oil prices are low now, labour and materials are cheaper and available now." Under the circumstances, the Vista chief thinks it makes sense for financially strong SAGD producers to put money into long-lead items—for instance, project engineering and fabricated components like steam generators and some water treatment components.

Vista is now working on the Whitesands bitumen project, operated by Petrobank Energy and Resources Ltd. Whitesands utilizes Petrobank's THAI (toe-to-heel air injection) recovery process. The technique combines a horizontal production well with a vertical air injection well placed at the toe, using in situ combustion to liquefy and drive the bitumen. "This is only one of several in situ technologies that are being developed," Campbell says. "Over the next

five years, bitumen producers will create new solutions that help address ecological concerns about water and air, as well as reducing their costs."

Laricina Energy Inc. is working on a technique to produce bitumen through injecting a mix of light hydrocarbon and inert gas, with no heat required. Although the junior producer has slowed development in the face of current economic conditions, Laricina president Glen Schmidt remains confident that underground recovery has a bright future. "Eighty per cent of the oilsands is too deep to mine. The industry has only begin to work on in situ recovery, we've made good progress, and we're poised to make much more," Schmidt says.

The Laricina CEO chairs the newly formed Alberta In Situ Oil Sands Alliance (AISOSA), which also includes Athabasca Oil Sands Corp., MEG Energy Corp., and Osum Oil Sands Corp. Schmidt argues that in situ operators need to inform North Americans that their approach to bitumen recovery involves far less ecological intrusion than surface mining. He also predicts that improved efficiencies can reduce Alberta bitumen's in situ carbon footprint (CO₂ emitted per barrel) below imported overseas crude. >



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Because recession has reduced global demand, the world has excess crude production capacity. Some analysts do not expect that overcapacity to last long, especially if total investment in drilling and development is steeply curtailed. "World-wide, production from an average well—both oil and gas—declines at a yearly rate of 25 per cent. That's a formidable decline curve," Harvest's Zahary says. "The world cannot survive without energy. Oil prices will recover before gas, and gas will recover more quickly than the overall economy."

CERI economist McColl forecasts: "The more severe the investment decline, the bigger the price bounce is bound to be when it comes." Jim Gray, the retired co-founder of Canadian Hunter Exploration (which identified the Deep Basin in north-western Alberta), recently predicted that crude will reach roughly US\$200/bbl in five years. Matt Simmons, a well-known Houston investment banker and author, suggests that drastically reduced drilling conceivably could trigger price spikes as high as US\$500/bbl within a few years. Until then, Bonnyville's Letwinetz comments, "it will be 'survival of the fittest' for the service sector." ●



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