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SAGD Operators Urged To Consider Bitumen Emulsion Fuel

By Pat Roche

Producers planning steam-assisted gravity drainage projects should consider bitumen emulsion for fuel as well as well as natural gas, an engineer recommends.

Don Greaves, a senior project manager at **Colt Engineering Corporation**, looked at the various options available for SAGD operations.

He concluded the most economically attractive option for steam generation is a bitumen emulsion fuel called MSAR (which stands for Multiphase Superfine Atomized Residue). Developed by **Quadrise Canada Fuel Systems Inc.**, the new liquid fuel consists of fine oil droplets in a water suspension ([DOB, Nov. 18, 2004](#)).

"It's the cheapest, easiest way in the short term to make steam," Greaves told the Bulletin after presenting his conclusions at the **Insight Information Co.** oilsands conference Thursday.

"The real beauty of it is (the MSAR fuel is supposed to be about) 99% combusted. So you don't get a whole bunch of residue left in your boilers," which should dramatically reduce downtime and maintenance costs, he said, commenting on MSAR test results.

Several SAGD projects are planned or under construction in Alberta, but some are still relying solely on natural gas as fuel for steam generation.

"My concern is that will hurt the industry when we start shutting plants down because they can't afford the cost of natural gas," said Greaves.

His concluded bitumen emulsion would be more economically attractive than natural gas once the price of gas exceeds \$4.65 a gigajoule. The AECO/NGX spot price and near-month contract price are currently hovering around \$6 a gigajoule.

The capital cost of a bitumen emulsion-fuelled unit would be about a third more than for gas-powered steam generation, but significantly lower operating costs would justify it, Greaves said.

He said the capital cost of gas-steam generation for a 30,000-bbl-a-day SAGD project would be about \$360 million versus \$480 million for bitumen-fuelled generation.

But at current gas prices, the operating cost of bitumen-fuelled steam generation would be roughly \$3 a bbl lower than for gas-fired steam.

If gas prices are at \$6.11 a gigajoule, Greaves said, the operating cost of a conventional gas-fired SAGD project would be \$12.76 a bbl versus only \$9.87 for a bitumen-fuelled operation.

So for an extra \$120 million in capital spending, an operator would reduce SAGD operating cost by about 25% -- and would no longer have to worry about gas prices.

And if gas prices go to \$7 a gigajoule, he said, the bitumen-fueled unit would pay for itself in about a year.

[Previous](#)

[Next](#)

[Contents](#)

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