

Cashing in on innovation

Wal van Lierop, co-founder of Chrysalix Energy Venture Capital, reckons that the energy industry has much to be optimistic about. He tells Damon Evans why

WAL van Lierop, co-founder of Vancouver-based Chrysalix Energy Venture Capital, formed in 2001, believes the energy industry is on the cusp of profound change.

"I'm very bullish that the oil and gas sector is at the point of having to transform itself into the new energy industry of the future. The only way to do that is to reach out to all the other innovators in the energy business, which come from the clean energy side," says van Lierop, who has advised major oil companies, the World Bank and the EU, and has helped raise more than \$1 billion for early-stage technology ventures.

He adds: "Over the next few decades we'll see a little bit of a dog's breakfast between new forms of energy and traditional oil and gas plays. But one thing that will combine them both is very aggressive innovation."

Van Lierop's optimism comes as renewable energy and energy storage are becoming priorities for the industry. Enhanced oil recovery (EOR) using solar is an interesting example of the amalgamation shaping up between the old and new energy industry, he says. In the Middle East, solar is fast replacing natural gas as the fuel to generate steam for injection into semi-depleted oil wells. Given liquefied natural gas (LNG) can be sold in Asia for more than \$12 per million British thermal units (Btu) it's no wonder that solar, at a cost of \$5-7/million Btu, is gaining traction for EOR.

Clean energy

Van Lierop is also bullish on nuclear fusion, which he says could yield "limitless" clean energy and become commercial within the next decade. Indeed, annual investments in renewable energy power generation are on a par with new capital investments in fossil fuels. They will rise by \$5 trillion in the next 15 years as the renewable power generation market share increases to more than 50%, according to data from Bloomberg New Energy Finance.

For the time being, van Lierop, a former McKinsey consultant, says the energy business is still very much a mainframe business. But it will increasingly integrate innovation until the industry is much more modular and less capital intensive, effectively creating what he believes will be "its own version of the personal computer".

Many oil companies are starting to realise that their marginal assets will either have to be written off or made to work through innovation, he says. The industry may also face pressure from financiers – who have grown increasingly wary of stranded assets – to innovate and adopt a smaller-scale, modular approach.

He argues that energy companies need to boost their spending on research and development (R&D). The energy sector's R&D spend is, on average, lower than in other industries, he says, with an industry average spend of around 0.3% of revenue on R&D. Some analysts, however, claim R&D investment in the energy sector could already be in the range of 1-3%.

"I'm not suggesting they should hit the levels of the Apples or Googles, who clearly spend more than 10% on

R&D. But if energy companies would go from 0.3% to 3% they could probably change the landscape dramatically," he says.

Van Lierop's comments echo those of Wee Yaw Hin, Petronas executive vice president upstream, who recently said that without wider risk-taking innovation and deeper collaboration, the sector will struggle to supply affordable and sustainable energy supplies over the coming decades.

Van Lierop agrees, adding that weak oil prices could be beneficial, giving players the incentive to innovate.

Price volatility has put the spotlight on innovation and disruptive technologies as a means of helping to control rising costs and increase returns, while improving the sector's environmental footprint.

In December, when oil was trading around \$60 a barrel, a number of North American oil firms committed more than \$100 million to an innovation accelerator – a pooled resource fund that will drive innovation in clean technology, as well as oil and gas tech.

Van Lierop draws a parallel with the experience of other industries, such as household appliances and solar power generation. In those sectors, when innovation gains pace, the quality of the product increases as prices go down. "From this we can only draw one conclusion – it's going to go in the same direction for oil and gas, as advances in unconventional exploration technology have shown," he says.

Many observers see the present oil-price volatility as the downward curve of a boom-and-bust cycle, but van Lierop disagrees. "They only see one trend and that is going up," he says. "I think we have passed an inflection point. Oil prices will probably bounce back, sooner rather than later. But I don't think that they will top \$100 because we are in the first inning of innovation."

He also believes we are seeing a shift where innovation will start to drive pricing. This will apply in the oil and gas industry, but it will also drive costs down for alternative energy, as refinements further improve the efficiency of new applications.

He says too that the industry should not just look for new technologies, but also consider creating new business models via "alliances" with other industries.

For example, imagine if the energy sector formed a pact with the automotive industry, and, as a result, developed a much more fuel-efficient engine that allowed a car to drive 75 kms per litre of fuel consumed. The average new car uses roughly 7l to cover the same distance, while the most fuel-efficient cars available today – the Toyota Prius and Volkswagen Jetta TDI – consume 3l to travel 75 kms, so there is still quite a gap.

"I can almost guarantee you that, in most circumstances, that car (developed and improved through cross-industry collaboration) would be more environmentally benign than a Tesla (electric vehicle)," adds van Lierop.

For van Lierop, the staying power of clean tech has never been stronger, with the hype being replaced with mature, profitable, sustainable solutions that are ready to help innovate the core businesses of large industries – including the energy sector. ●

