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RESCUE STRANDED GAS ASSETS WITH NEW MARKETS, URGES EXPERT

B.C. has world-class natural gas reserves, but so does the U.S., which has gone from customer to competitor

Unconventional oil and gas has given Canada and the U.S. a unique energy advantage that should be the envy of the world.

It gives both countries an economic edge (tens of thousands of jobs and low-cost energy), as well as an environmental edge: abundant natural gas and liquefied natural gas (LNG) that could help in the transition to a lower-carbon world.

“We’re going to blow it.”

That was the warning given by Harvard Business School professor Michael Porter, head of the school’s Institute for Strategy and Competitiveness, at the Globe 2016 conference in Vancouver earlier this month.

He fears the U.S. and Canadian publics don’t fully understand the opportunity that natural gas exports present for both the economy and the environment.

“We’re going to blow it not only for the economy, we’re going to blow it for our society, we’re going to blow it for the environment,” Porter said.

While Canada may view the U.S. as an increasingly aggressive competitor – killing Canadian pipeline projects while ramping up exports of American natural gas into Canada – Porter sees Canada as a potential benefactor in the U.S.-led unconventional energy revolution. But both will need to become energy exporters.

“The only other country that has this resource and the capacity to develop this resource is you [Canada],” Porter said. “Nobody else in the world is even at Square 1.”

Just a decade ago, the U.S. was a net importer of oil and gas, with Canada one of its biggest suppliers of both.

Hydraulic fracturing and horizontal drilling resulted in the shale oil and gas revolution, which has flipped that relationship on its head. In a single decade, the U.S. went from Canada’s biggest customer to its biggest competitor, and it is even beating Canada to the LNG punch.

Cheap gas from the Marcellus shale formation in New York state has been flooding into Eastern Canada, which was once supplied largely by the western provinces.

“That used to be almost all Canadian gas,” said Dan Allan, executive vice-president of the Canadian Society for Unconventional Resources . “It’s now being displaced by cheaper [U.S.] gas.”

From 2007 to 2014, exports of Canadian natural gas to the U.S. declined 29%, according to Geoff Morrison, B.C. manager of operations for the Canadian Association of Petroleum Producers.

The Canadian Energy Research Institute estimates the flow of gas from the U.S. into Canada will double by 2027.

Thanks to the shale gas revolution, the Marcellus shale formation alone now produces more natural gas than all of Canada, Morrison said.

“We’ve been observing the U.S. [supplying gas to] markets that we traditionally serve, both in the States but also places like southern Ontario and Quebec,” Morrison said. “Our biggest customer is now our biggest competitor, both in terms of North America [and] in terms of LNG.”

But the U.S. isn’t the only country with rich unconventional gas assets. The Montney Formation in northeastern B.C. is considered one of the richest in North America, due to its liquids.

And earlier this month, the National Energy Board updated estimates for the Liard Basin, which straddles B.C., the Yukon and the Northwest Territories. According to that estimate, B.C.’s share of the Liard has four times as much gas as previously estimated.

But without an export market in the form of an LNG industry, it’s unlikely to see much development.

“We’ve got a big tank of gas up here and we’ve got limited customers,” said Greg Bury, president of the Gas Processing Association Canada. “If we don’t get to the coast, ultimately we are going to have stranded gas and we are going to stop building projects.

“It’s happening every day as we speak. I have been intimately involved with so many project cancellations that it’s ridiculous.”

Porter suggested the North American public doesn’t realize just how important the shale gas boom has been for the American economy.

"We estimate that more than half of all the jobs that have been created since the Great Recession ended were in energy, or related to energy in one way or another," he said.

Since energy is a huge part of any economy, cheap oil and gas – for both power and transportation – are a huge competitive advantage.

"This has allowed us in the U.S. to have a substantial energy cost advantage over pretty much every other country, except Canada," Porter said.

But both Canada and the U.S. are at a crossroads.

Because of the local environmental concerns that fracking poses, and concerns about the effect on climate change of burning natural gas, shale gas and LNG are getting a rough ride in the department of social licence and the office of public opinion.

But just as North American innovation led to the shale energy revolution, Porter said, it can also address the attendant environmental concerns.

"This opportunity is truly a game-changer," Porter said. "Right now it doesn't feel so good, because oil prices are down and gas prices are linked to oil. But over the long run, this downturn is stimulating another wave of innovation and efficiency and competitive advantage."

Far from thwarting renewable energy investments, natural gas could be a buttress, he said.

"We're going to need a lot of natural gas if we're going to make the transition to clean energy. Natural gas is a powerful tool we have to make this transition, because it's going to take decades to do it. In the process of using natural gas as a transitional fuel, it's going to also hold down the cost of the transition."

CANADIAN IIOT STARTUPS REBORN IN WAKE OF OIL CRASH

The fast-growing Canadian Internet of Things (IoT) market is poised to exceed USD$4.9 billion by 2018. However, if Canadian industrial IoT (IIoT) is to aspire to such lofty heights, the industry must navigate several challenges – like a low dollar environment that can be both a blessing and a curse.

In a 2015 report, International Data Corp. (IDC) estimated that by 2018 the Canadian IoT addressable market will be worth over USD$4.9 billion, up from $2.8 billion in 2013.

IIoT in Canada has been forced to innovate to conquer the country's key geographic weakness – a small population and remote resources spread out over vast distances. The remote locations of Canada's many energy and mining projects sparked innovative startups such as Calgary, Alberta-based companies GEOTrac, which provides fleet management technology, and Pure Technologies, a maker of pipeline inspection robots.

The recent downturn in energy prices and oil demand presented a challenge for IIoT innovation driven by natural resources investment, particularly investment from Alberta's private equity markets. With natural resources comprising around 15% of its national GDP, Canada was especially hard hit by the oil price decline.

However, CEO of the Canadian Venture Capital Association (CVCA) Mike Woollatt said Canadian venture capital funds are seeing increased investment opportunities in Canada's shift away from natural resources towards other avenues of innovation. He cited the record $2.3 billion in venture investment generated in Canada in 2015 – a 24% increase from the previous year despite the massive hit taken by the Canadian energy industry. Much of this activity is being driven by the relatively low valuations for Canadian startups compared to Silicon Valley, especially with the Canadian dollar trading at a 30% discount to the greenback.

"Everyone's pretty interested in Canada, the dollar's at 70 cents, there's tons of opportunities, a lot of companies growing like crazy, but there's less competition for financing than in the Valley," said Woollatt, who said the CVCA will be dedicating a breakout wing of its upcoming conference this spring to wearables and IoT.

With the IPO market almost non-existent in Canada, strategic exits are now dominating activity among fast-growing IIoT companies. Last fall, Atlanta-based Acuity Brands bought Distech Controls for USD$242 million. Quebec-based Distech is a leader in smart building automation and energy management solutions.

This follows the USD$138 million acquisition of Ottawa-based SkyWave Mobile Communications, the biggest machine-to-machine communications provider on the Inmarsat satellite network. SkyWave was bought by Orbcomm, a global equipment tracking company headquartered in New Jersey.

The low Canadian dollar makes exports of wearables and IIoT products to the U.S. much more competitive, especially considering the comparatively huge size of the American market. However, the low Canadian dollar presents significant challenges for startups looking for top talent.

"One of the big hindrances to growth and scale in Canada is talent recruitment and retention, and that includes designers, sales and engineers," said Woollatt who explained the difficulty Canadian IoT startups face competing for talent when Silicon Valley pays larger salaries in U.S. dollars. "Canada is one of the cheapest places in the world to launch a startup, but we don't have the ability to scale because we don't have huge check-writers, we don't have huge swaths of talent, and the talent is very expensive."

Nonetheless, the Canadian IIoT ecosystem continues to steadily expand and attract investment from both U.S and homegrown venture players, like Toronto-based VC firm McRock Capital which specializes in IIoT. McRock recently led a $3 million Series A investment in Moncton-based RtTech Software that makes real-time efficiency improvement tools for the manufacturing industry.

Also generating recent investor

interest is Toronto-based MMB Networks, which closed USD$4.5 million in series B financing led by Roadmap Capital. MMB's drop-in embedded software platform features interoperability across multiple popular IoT platforms and protocols, and cuts time-to-market for connected device vendors.

Other notable startups emerging from the Canadian IIoT scene include: Invixium (biometric security); SensorSuite (smart building monitoring and energy efficiency); Awesense (electrical grid monitoring); Miovision (traffic data collection and signal operations); mnubo (big data analytics for IoT); and Blue Rover (IoT connectivity and asset monitoring).

FRACKING, NOT DISPOSAL, BEHIND HUMAN-CAUSED EARTHQUAKES IN WESTERN CANADA: STUDY

New research suggests that hydraulic fracking of oil and gas wells is behind human-caused earthquakes in western Canada.

The study, published Tuesday by a group of top Canadian researchers, concluded that it isn't injecting wastewater underground that's causing problems in Alberta and British Columbia — a major step in understanding seismic events in those provinces that have already changed regulations and caused public concern.

"It's critical that we get to a complete scientific understanding of the issue," said David Eaton, a University of Calgary geophysicist and a co-author of the study.

Fracking involves pumping high-pressure fluids underground to create tiny cracks in rock and release natural gas or oil held inside. Scientists have previously concluded that oilpatch activity can cause earthquakes by making it easier for faults in underground rock to slip, but they didn't know whether the Canadian quakes were caused by fracking or by the injection of wastewater back underground.

Public interest in the issue has been high, especially after an event in January shook pictures on the walls of homes in Fox Creek, Alta., a community in the centre of the Duvernay oil and gas field. Measuring between a 4.2 and 4.8 magnitude, that quake was the largest of hundreds of similar shakers around the community since 2013.

Watch below: Fracking suspected of causing Fox Creek, Alberta earthquake

Eaton and his colleagues began with a database of more than 12,000 fracked and disposal wells drilled between 1985 and 2015. They cross-referenced that with another database of all seismic events over that time.

A complex statistical analysis pinned the blame convincingly on fracking and not disposal, Eaton said.

"There are more earthquakes in western Canada that are more related to hydraulic fracturing than wastewater injection by a factor of about two."

Eaton said that's the reverse of the situation in the United States, where wastewater disposal is considered to be behind most human-caused seismicity.

That doesn't mean that a lot of wells cause earthquakes. Eaton calculates that about .3 per cent of fracked wells create problems.

But there are enough wells drilled for even that tiny fraction to be a concern.

"Even at .3 per cent, because of the very large number of hydraulically fractured wells, it still represents an issue that is of high priority to address scientifically," said Eaton.

Alberta's energy regulator has already changed its regulations for the industry as a result of the Fox Creek earthquakes. Eaton said regulators in British Columbia are also considering changes.

"The regulators have been quite responsive," he said.

Watch below: Alberta energy regulator brings in new rules to try to prevent fracking-related earthquakes

Eaton said his findings raise questions about how well the geology of heavily fracked oilfields in Alberta and British Columbia is understood.

"The occurrences in Canada have come as a surprise — in some cases, to industry — because there was a belief that all the potential faults had been identified," he said. "One of the things we're actively researching is to find new and better ways to identify these features.

"We're looking for the signature of critically stressed faults in new and different ways."

Eaton said scientists are aware of the pressure they face getting this issue right.

"There's a mixture of science and the whole social-political aspect of this," he said.

LNG SUBSIDIARY BUYS MORE LAND IN CANADA

The subsidiary of ASX-listed Liquefied Natural Gas (LNG), Bear Head LNG Corporation, has reached an agreement to purchase additional land from Nova Scotia Business Inc, to allow the company to expand its LNG facility on the Straits of Casno. Bear Head LNG president Maurice Brand said on Tuesday that the acquisition of the additional land would enable the company to increase the capacity of its LNG facility from 8-million tonnes a year to 12-million tonnes a year by 2024. "Over the past couple of years, Bear Head LNG has made significant progress on the project by obtaining regulatory certainty. This agreement between Bear Head LNG and Nova Scotia Business Inc is important for future development and planning, thus facilitating economic growth and job creation in the Strait region." Bear Head would acquire an additional 72 acres of land directly adjacent to its existing 255 acre site. Bear Head has Canadian approval to export up to 12-million tonnes a year of LNG, while the US Department of Energy has allowed the company to export US-sourced natural gas to both nations that had existing free trade agreements, and nations that did not

SHELL'S ARCTIC OFFSHORE ENERGY EXPLORATION PERMITS MAY HAVE EXPIRED

Environmentalists say talks on creating a third national marine conservation area are being held up over Arctic offshore energy exploration permits that may not legally exist.

"Looking at the permits, it looks like the rights expired in 1979," said Alex Speers-Roesch of Greenpeace.

The federal government has been trying for years to protect the waters of Lancaster Sound, the eastern gate of the Northwest Passage and home to a wealth of Arctic seabirds and mammals. The effort is strongly supported by local Inuit hunters and land claim groups.

READ MORE: US bars oil drilling off Atlantic coast

But drawing the exact boundaries

of the area, off the north coast of Nunavut's Baffin Island, has been at least partly held up over 30 exploration permits issued in the early 1970s to Shell.

Ottawa, under the previous Conservative administration, argued to keep the permits outside the area; Inuit and environmental groups wanted the protected area to include them and block industry activity. Shell wants compensation for any rights it loses.

But researchers have now found those permits may not be valid.

"Exploration rights are supposed to not last longer than nine years," said Speers-Roesch. "When we were looking at the existing exploration rights in the Arctic, the Shell permits stood out because they've been around for decades."

An Access to Information search found no evidence the permits had been renewed. An Information Search by Indigenous and Northern Affairs Canada, the responsible department found no evidence either.

The department acknowledged there was no record of renewal, but pointed out there's no legal requirement that "permits be stamped for renewal purposes." However, the department must let companies know when permits are about to expire — and there's no record of that happening, either.

"The validity of the Shell permits is indeed a legal question and not simply a 'clerical issue,' " wrote spokesman Michel Chenier.

But Chenier argued the permits are valid because both the company and the government have acted as if they were.

READ MORE: Pipe breaks off, falls to ocean floor as rig moved during storm off Nova Scotia

"Both industry and government have continuously treated the 30 Shell permits as being valid and subsisting from the original date of issue to the present and will continue to do so in the future."

But Nigel Bankes, a professor of resource law at the University of Calgary who's familiar with the issue, said "I don't think that's good enough."

He points out Canada's regulatory regime has changed twice since the permits were granted and there's no evidence they were kept up to date.

"It doesn't look to me like these permits were properly maintained."

Exploration permits are designed to encourage companies to get on the property and work, he said.

"No one would contemplate an exploration permit should be held forever."

Shell did not immediately respond to a request for comment.

According to notes from a consultation meeting on Lancaster Sound held in May 2014, Shell downplayed the value of the permits and called a federal study into their possible oil and gas reserves "highly optimistic." The notes say the area won't be a priority for Shell for at least 15 years.

But at the same meeting Shell insisted on conducting seismic tests on its permit areas before it will consider swapping them.

Inuit are unlikely to agree.

In 2010, land claims groups went to court to force a German research vessel with plans to conduct tests in Lancaster Sound to turn around mid-voyage. Another court battle is ongoing over seismic testing off Baffin's east coast.

Chris Debicki, of Oceans North Canada, called the uncertainty a chance to move ahead on the creation of the protected area. He said all other companies that have held exploration permits from the 1970s-80s have either relinquished them or allowed them to lapse.

"It would be an opportunity to expand the Marine Conservation Area," he said. "It's not an appropriate place to consider drilling."

Ottawa has currently protected less than one per cent of Canada's marine areas. The goal by 2020 is 10 per cent.

CHANCE TO SUPPLY LNG TO JAPAN FADING FAST: AMBASSADOR

Japan's top diplomat in Canada warns that B.C. projects are at risk of missing the boat

Delays at the federal level in approving the $36 billion Pacific NorthWest LNG project are putting Canada at risk of missing out on the biggest market in the world, warns Japan's ambassador to Canada.

Petronas' multibillion-dollar liquefied natural gas (LNG) project in Prince Rupert – already past the 750-day mark of what was supposed to be a one-year review – experienced yet another setback in mid-March, when the federal environment minister pushed back a final decision by another three months.

In deferring her decision, federal Environment Minister Catherine McKenna said "several new areas of uncertainty" have arisen, including Pacific NorthWest (PNW) LNG's position that some of the measures proposed to mitigate effects on fish habitat are not feasible.

In a letter to the Canadian Environmental Assessment Agency (CEAA), Kenjiro Monji, Japan's ambassador to Canada, warned that the LNG market opportunity in his country is closing fast.

"If the approval of the environmental assessment is delayed further, Canada may run the risk of missing the chance to export LNG to the growing Asian market for a long time," Monji wrote.

Meanwhile, in Fort Nelson, Fort St. John and Terrace, truckers, small-business owners and First Nations are turning up the heat on Ottawa to approve the project.

Even the Lax Kw'alaams Band, one of the most vigorous opponents, appears to have had something of a change of heart, as a result in a change of leadership.

On March 16, truck rallies held in Terrace, Fort Nelson and Fort St. John drew hundreds of LNG supporters, and one of the organizers said thousands of letters have been sent to politicians in Ottawa urging them to approve the project.

Petronas' PNW LNG project has long been considered a front-runner project. But it has experienced numerous delays and obstacles, mostly over its choice of a site for its LNG terminal and the potential threat it may pose to salmon habitat.

Those concerns led the Lax Kw'alaams Band last year to reject a $1.2 billion offer of land and cash to support the project.

But in a change in leadership in November, the former mayor, Garry Reece, was replaced by John

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Helin. (Lax Kw'alaams do not use the term chief for elected leaders).

In a letter to the CEAA, Helin wrote that if the federal environment minister approves the project, the Lax Kw'alaams will support the decision, provided it meets certain conditions.

Those conditions include PNW LNG reporting to an environmental performance committee – which would include Lax Kw'alaams membership – on environmental monitoring, and acting on its advice.

Not all Lax Kw'alaams are on board with that position, however. A group of hereditary chiefs have filed a title claim on Lelu Island, the proposed site of PNW LNG's plant.

While the project has given rise to concerns about potential damage to the marine environment, Fisheries and Oceans Canada and the CEAA concluded in a draft recommendation that there was low potential for adverse effects on fish and fish habitat.

That conclusion has been criticized in a letter signed by 130 scientists, many of them fisheries biologists and ecologists, who say the environmental review was scientifically flawed.

In his letter to the CEAA, Monji stated that Japan is keen to secure LNG contracts with Canadian producers but warns that a window of opportunity is closing fast.

Japan is trying to secure long-term contracts to meet its target of having LNG provide 27% of the country's energy by 2030.

“Canada is one of the most promising potential LNG supply sources, with major reserves of natural gas,” Monji wrote. But he adds that Canada has competitors.

“The global LNG market has changed drastically from a seller's market to a buyers,' and competition among LNG suppliers is increasing. As LNG exports are usually based on long-term contracts, should Canada miss a window in demand for LNG, the next opportunity may be 10 or 20 years in the future.”

CANADA'S STIMULUS BUDGET AIMS TO REVIVE OIL-HIT ECONOMY

Canada's new Liberal government on Tuesday unveiled a stimulus budget to revive growth with infrastructure spending and said it would run a deficit nearly three times larger than promised during last year's election.

The government said the budget was expected to raise growth 0.5 percent in the first year and 1.0 percent by the second after the party of Prime Minister Justin Trudeau warned last month an oil price plunge had weakened Canada's economic and fiscal outlook.

The government projected a C$29.4 billion ($22.5 billion) deficit for fiscal 2016-17, higher than the C$28.6 billion forecast in a Reuters survey, and gave no target date for returning to a balanced budget.

Economists said the stimulus package lowered chances the Bank of Canada will need to cut interest rates again in April.

Trudeau has pledged to break with Group of Seven peers by countering slow growth with fiscal stimulus rather than austerity. Finance Minister Bill Morneau said the government would spend C$3.97 billion on infrastructure projects in the coming fiscal year, ramping that up to C$7.32 billion the following year.

Infrastructure spending, a major plank of the Liberal campaign, will include upgrading public transit.

“We are seizing the opportunity to invest in people and the economy, and to prepare Canada for a brighter future,” Morneau said in his budget speech.

But Rona Ambrose, interim leader of the official opposition Conservative Party, said from a taxpayer's point of view the budget was “a nightmare scenario” given the lack of specifics on returning to balanced accounts.

The Canadian dollar was little changed immediately after the budget's release. [CAD/]

The budget, as expected, broke several pledges the Liberals made before the election, including running just three years of deficits of up to C$10 billion before balancing the books by fiscal 2019-20.

Because the Liberals command a majority in the Canadian Parliament's House of Commons, the budget is guaranteed to pass.

The budget forecast the deficit would decrease slightly to C$29.0 billion in 2017-18. But there was no specific forecast for a return to a balanced budget, with the budget still expected to show a deficit of C$14.3 billion in 2020-21.

There was also a C$6 billion adjustment for risk included in each year's deficit figures.

The finance minister told reporters that if the stimulus generated growth at the top range of forecasts, the Liberals should be able to balance the books in five years.

“There is a pretty good chance if the economy performs as expected that the deficit numbers could actually track lower through the forecast horizon,” said Robert Kavcic, economist at BMO Capital Markets.

The government said it would set a timeline for balancing the budget when growth was forecast to remain on a sustainably higher track.

“I'd like to have seen a zero in there at some point but there's mention of it, so it's a step in the right direction,” said Craig Wright, chief economist at Royal Bank of Canada.

The budget forecast federal debt as a percent of gross domestic product would rise to 32.5 percent in the coming fiscal year from this year's 31.2 percent. It will not get below its 2015-16 level until it hits 30.9 percent in 2020-21.

Markets widely expect the Bank of Canada to stay on hold at its April meeting, when the bank will incorporate the budget into its economic forecasts. The bank cut rates twice last year.