

Small-scale LNG makes in-roads in Canada's far north

Three communities in Canada's far north are going to great lengths — literally — to join the liquefied natural gas world.

In a way, natural gas has been tantalizing Inuvik, Whitehorse and Watson Lake for 40 years, ever since the great oil and gas discoveries in their northern neighborhood at Canada's Mackenzie River Delta and Alaska's Prudhoe Bay.

But although multiple pipeline projects have been proposed over the years to deliver methane to Canadian and U.S. markets, dropping off gas in the three northern communities and others along the way, none has been built.

Facing more years of pipeline uncertainty, utilities in the three towns — two in the Yukon Territory, and one in a remote corner of the Northwest Territories — now are planning to import gas from the other direction, the south. They intend to truck LNG from over a thousand miles away — from the Vancouver and Calgary areas — to feed their power plants, possibly as soon as this winter.

Inuvik, the farthest north of the three, already has a gas-fired power plant. But one of the two wells feeding it since 1999 has petered out and the other is gasping out its last gas. The plant has switched to diesel for the last two years to conserve the remaining trickle of gas for heating fuel. However, plant managers plan to get back on



gas when they receive their first LNG truckload, expected in November 2013.

Whitehorse and Watson Lake power utilities also aim to save fuel costs and slash emissions by substituting methane for diesel in some generators.

Small-scale LNG use, such as that eyed by the three northern Canada communities, is an up-and-coming trend in the gas world.¹ While still dwarfed by the main business of LNG — making and shipping massive amounts across oceans to mega-utilities in gas-starved countries — serious investments are starting to get made in niche LNG projects as well.

HAWAII'IGAS expects to take delivery of its first 40-foot container of LNG by year-end, subject to regulatory approval. The utility wants LNG to back up its synthetic natural gas supply. The LNG will be trucked from a small U.S. plant to a West Coast port, then sail to Oahu aboard a container ship.

For a venture with similarities to those in northern Canada, the Alaska Legislature in 2013 approved a cash-and-loan package for an anticipated \$430 million trucked LNG project.² The supercooled gas would be trucked about 500 miles south from Prudhoe Bay to the Fairbanks area for use initially as a heating fuel, although the methane could fuel a local power plant and refinery as well.

The two northwestern Canada territories have similarities and differences with Alaska.

Like Alaska, both are massive in area, almost unimaginably remote, sometimes spectacularly cold and sparsely populated — much less populated than Alaska in part due to far less resource development and federal presence. In all three, providing energy to a small, scattered population can be incredibly expensive and inefficient.

The Yukon is somewhat bigger than California but the entire population could be housed in all but the smallest Los Angeles suburb (provided folks could be persuaded to live there) — about 34,000

people for the entire Yukon, with more than two-thirds, 23,300, in the capital of Whitehorse.³

Northwest Territories is bigger in area and population. Its 452,000 square miles make it about three-quarters the size of Alaska. About 41,000 people live there, not quite half in the capital of Yellowknife. Inuvik is the third largest town, with 3,500 residents.

Like Alaska, most people live clustered in communities strung along a basic road system that penetrates part of the two territories. But many communities subsist off this network.

Like in Alaska, the Yukon's core population is tied together on an electrical grid that parallels the main roads, but many towns lie beyond the grid. Neither the Alaska nor the Yukon grid is plugged into the respective national electrical grids. The Northwest Territories has two small local grids, but most of its power plants are disconnected from one another.

A variety of catalysts is sparking the rise of small-scale LNG projects such as those the three northern Canada utilities are pursuing. Technology improvements that lower costs. Reduced emissions that address social and political pressures. And a biggie, especially in North America: Burning natural gas rather than oil-based fuels can save money.

DASHED DREAMS IN INUVIK

Like a struggling actress whose apartment overlooks a Hollywood studio, Inuvik residents can only look on its natural gas predicament with wistful eyes.

About 30 miles straight north lies the Parsons Lake field, 1.8 trillion cubic feet of natural gas, a ConocoPhillips and ExxonMobil prospect.

Parsons Lake is the southernmost of three fields that would anchor the long hoped for Mackenzie Valley pipeline, a multibillion-dollar project that has eluded development since gas discoveries in the 1970s.⁴



Photo courtesy of the Town of Inuvik

The Arctic town of Inuvik in Canada's Northwest Territories has scrambled to find new fuel sources for heat and power since local natural gas wells started failing a few years ago.

Just over a decade ago, the project was looking boffo. Fears ran rampant of North American methane shortages. Gas prices soared. The Alaska gas pipeline project to the Lower 48 was revived. LNG import terminals sprouted along the Gulf of Mexico coast. And developers blew dust off plans for the Mackenzie Valley project.

The pipeline would start right there in Inuvik, a Native word meaning "place of man." The line would extend 743 miles to Alberta, carrying perhaps 1 billion cubic feet a day to North American markets.

It was not to be. New drilling techniques started tapping ample supplies of Lower 48 shale gas resources. Gas shortage over. Prices plunged. The Mackenzie Valley pipeline plans got stacked back on the shelf.

This left Inuvik residents and businesses in an unexpected fix. They had a decade-old gas addiction and were counting on the Mackenzie fields to stay hooked up and happy.

Here's how that happened: In 1999, anticipating the Mackenzie gas fields and pipeline would get developed soon, Inuvik went all in on natural gas.

Two wells were tapped at a small deposit called Ikhil about 18 miles outside town. Everyone figured the deposit had a 15-, maybe 20-year life. Plenty of time. A 6-inch pipeline got laid. People switched their furnaces from heating oil to methane. The power utility embraced gas over diesel, although it retained some diesel generation.

Inuvik had blissfully cheap energy ... until 2011. That's when the town realized the wells were tapped out. The town has been in an energy crisis since.

COALS TO NEWCASTLE

For the past two winters, the Inuvik gas utility has relied on propane trucked in from Alberta to serve as the fuel for heating homes and businesses in town. That's the plan for this winter, too.

The trickle of gas still flowing from the Ikhil deposit outside town serves as an emergency backup — consider it Plan B. Plan C is to put on warmer coats.

Locally they call the propane "synthetic gas" because they dilute its high Btu content with air so that furnaces and appliances don't need to be recalibrated.

Not surprisingly, some locals grouse about the doubling of their heating bills last winter, although officials note that the bills are still lower than during the heating-oil era.

A variety of ideas are on the table for what happens next. An idea with some backing this fall involves tapping new

gas deposits nearby and making a clean diesel fuel from the methane produced, a process known as "gas to liquids."⁵ The diesel could be distributed from Inuvik to other villages, too, rather than barging in fuel from long distances as currently occurs. A key challenge for the idea: It would take tens of millions in up-front spending to get going.

To save Ikhil's dwindling methane flow for the local gas utility, the power utility, the government owned Northwest Territories Power Corp., in January 2012 switched over to its diesel generators in Inuvik.⁷

That was a temporary fix. Absent a dependable gas supply, the longer-term plan was to install another diesel generator and spend \$10 million to switch two gas engines to diesel, Mike Ocko, the Thermal Division director, said in the utility's 2012 annual report.⁸

"We have no choice," he said.

It turns out there is another choice.

LNG figures to be 15 percent cheaper than diesel even though it will be trucked in about 16,500 gallons at a time from suburban Vancouver over 2,000 miles away, said Andrew Stewart of NT



Wells at the Ikhil deposit 18 miles from Inuvik have supplied the Arctic town with natural gas since 1999. But one well has watered in and the other is almost tapped out, causing an energy crisis for Inuvik.

Source: National Energy Board, Government of Canada

Energy, a sister company of Northwest Territories Power Corp., the Inuvik power company.

The utility officially embraced the LNG option, and abandoned the all-diesel approach, in spring 2013. A few months earlier, a NT Energy study concluded: "LNG is the only option analysed that can provide the base electricity requirements for Inuvik and is the only heating option that would not require significant capital expenditures by each individual building owner. LNG would provide fuel for both electricity and heating at a cost lower than the base case."⁹

But, as often is the case in such studies, there was a caveat. "The storage requirements needed to meet heating demand are significant and require further analysis for site selection, security of supply and cost."

Electricity won't have a storage problem because the utility will rely on just-in-time LNG deliveries, plus its diesel generators, Stewart said. The delivered LNG tank is the de facto storage vessel. He estimated one delivery a week and a 50-50 gas-diesel fuel mix by year-end 2013. Eventually the fuel flow will be 70 to 80 percent gas, he figured. Inuvik has ample diesel storage, he said, about a year's worth.

Lack of costly storage tanks is one reason the local heating utility hasn't snuggled up to LNG for warming homes and offices. The NT Energy study reckoned \$25 million for construction plus \$200,000 a year for operation and maintenance of LNG storage to serve both power and heating utilities.

So for now, it'll be gas for electrical generation. If Inuvik works out for the power utility, "the logical next phase is to take it to any road-connected diesel community," Stewart said.

GAS VS. DIESEL IN THE YUKON

In Yukon Territory, two power utilities are paving the road for trucked LNG deliveries.

The first and more modest effort belongs to Yukon

Electrical Co. for the small Alaska Highway hamlet of Watson Lake.

The private company plans to convert a diesel generator — one of six there — into one fueled by a mix of natural gas and diesel. Yukon Electrical hopes to have the system ready to go this coming winter, if it gets government approvals in time.

If this project proves successful after a year of testing, phase 2 will involve converting the remaining generators to mixed natural gas-diesel fuel. From there, if all works out well, Yukon Electrical and its parent company have ambitions to roll out trucked LNG elsewhere in remote, northern Canada, to other towns, oil fields and elsewhere where big, heavy-duty engines need fuel.

The second trucked LNG initiative is a \$34 million project to replace the two oldest diesel back-up generators at the Whitehorse Rapids dam with LNG-fueled turbines. A government utility called Yukon Energy Corp., which runs the dam, is pushing this project.

Yukon Energy hopes to break ground next spring on a site to house the storage and regasification equipment. It wants the LNG generators working for the 2014-2015 winter, saving almost \$3 million in fuel costs in the next year over diesel.

Again, this timeline depends on getting government approvals in hand.

Because LNG is new territory for Yukon regulators, it's unclear that all paperwork will get signed as fast as Yukon Energy and Yukon Electrical would like. But the government has seen the drive to LNG coming. In July it issued its first environmental and safety regulations for power-plant equipment that would warm LNG back into vapor before the gas is burned. Yukon Electrical's Watson Lake project is the first test of these rules, and the regulators want to make sure they act judiciously on the company's regasification-plant application.

Cost savings and cleaner air are LNG's key selling points for Yukon Energy.¹⁰ Hydro — relatively cheap. Diesel — relatively expensive. LNG — in



Photo courtesy of Western Copper and Gold

If the Casino copper-gold prospect gets developed into a mine, it could produce more power than is consumed in the rest of Yukon combined. Current plans call for natural gas to be the primary fuel, trucked in as LNG from British Columbia.

between. Yukon Energy pegs its diesel power-generation costs at 28.7 cents per kilowatt hour, with LNG coming in at 13.5 cents. By comparison, Inuvik's residential diesel-power rates are about 65 cents per kWh, before a territorial subsidy slashes it by more than a third.

How expensive is diesel? It depends on how far up the road you live. Yukon Electrical paid \$3.68 per gallon for its Watson Lake diesel in 2012, \$4.26 a

gallon for deliveries to its Beaver Creek power plant 550 miles away near the Alaska border, and over \$8 for deliveries to its Old Crow plant in Yukon's Arctic.

More on the Yukon Electrical and Yukon Energy ventures in a moment.

First, a detour to a third project that could transform the economics for Yukon trucked LNG, and for Inuvik, too.

ALL EYES ON CASINO

Hovering in the background is a remote copper-gold mine prospect that, if developed, could be so big that its power plant would produce more electricity than is consumed in all the rest of the Yukon combined.

It bears a roll-the-dice name of Casino. It's championed by a Vancouver, B.C., based junior mining company called Western Copper and Gold Corp., which is betting the company on Casino.¹¹

Casino lies in a region with an entrenched mining heritage — the remote hills and valleys of west-central Yukon. It's a bit

south of Dawson City and west of Carmacks, towns prospectors founded in the 1890s. The Yukon River flows roughly 10 miles north of Casino. Whitehorse lies 240 miles southeast.

Western Copper estimates Casino holds at least 4.5 billion pounds of copper, 8.9 million ounces of gold, 483 million pounds of molybdenum and 65 million ounces of silver. This "endowment" is



Photo courtesy of Western Copper and Gold

Western Copper and Gold Corp. envisions trucking in LNG for power-plant fuel when its Casino prospect, shown above, in west-central Yukon is developed into a mine.

roughly a 10th to a 20th the size of Western Alaska's massive and controversial Pebble copper and gold deposit, but it's sizable nonetheless.

The company believes that with a \$2.5 billion investment — including \$209 million for a power plant, and \$123 million for an airstrip and 80-mile access road into the deposit — Casino could produce for 22 years, sending the ore to market south by truck to the Southeast Alaska port of Skagway.

Western Copper readily acknowledges it lacks the financial heft to develop Casino on its own. It needs a deep-pocket mining major to partner in or buy the project. That said, Western Copper says it plans to apply for the government's environmental

review by late 2013 and that if all goes well production could start late this decade.

Here's why Casino matters to the region's trucked LNG ambitions:

Casino would haul in LNG for its power-plant fuel. It would need so much natural gas that economies of scale for trucking LNG to the northland would improve fantastically. It's likely to need enough LNG to justify construction of a liquefaction plant much closer than in suburban Vancouver — the source of Yukon Electrical's and Inuvik's supplies — or near Calgary — the source of Yukon Energy's supply.

Pretty much everyone in the Yukon points to Fort Nelson, B.C., as a likely site for a new LNG plant to

One-way mileage between Canadian cities

Vancouver and Watson Lake	1,245 miles*
Vancouver and Inuvik	2,252 miles*
Calgary and Whitehorse	1,422 miles
Fort Nelson and Watson Lake	319 miles
Fort Nelson and Whitehorse	591 miles
Fort Nelson and Casino mine	831 miles
Fort Nelson and Inuvik	1,352 miles
* Minimum mileage	

Sources: *Distancecanada.com*;
Office of the Federal Coordinator (for Casino)

meet local needs — especially if Casino is developed. A truck trip from Fort Nelson to Watson Lake is 1,100 miles shorter than one from Vancouver. A truck trip to Whitehorse is 800 miles shorter than one from the Calgary area.

As good as Yukon Electrical and Yukon Energy say the economics look for LNG vs. diesel today, they look fabulously better if the LNG can be sourced in Fort Nelson, which lies just over 300 miles down the Alaska Highway from Watson Lake and is amid some of northeast British Columbia's most promising shale-gas plays. Fewer trucks and tanks needed for the round-trip. Less fuel burned on the highway. Etc.

Energy would comprise about 30 percent of Casino's processing cost, estimated Cameron Brown, Western Copper's vice president of engineering. LNG cuts the fuel bill in about half over diesel, he said.

His company figures Casino will need a main power plant and a supplemental power plant totaling 135 megawatts of capacity, give or take. Peak demand elsewhere in the Yukon from utility-provided hydro, diesel and wind energy tops out at about 90 megawatts.

Gas would be Casino's main fuel. Western Copper figures it will probably need 10 to 11 LNG truck deliveries a day, Brown said. That would require a

fleet of about 35 trucks for the 1,700-mile round-trip between Fort Nelson and Casino.

By contrast, Yukon Energy figures it initially would receive two to four deliveries *per week* to its Whitehorse LNG generators, with a longer-term best-case scenario of possibly 2.5 deliveries per day on average. Yukon Electrical expects about one delivery every other week to Watson Lake for phase 1, and less than one per day if the whole power plant converts to mixed LNG-diesel fuel in phase 2. Inuvik likely would get fewer than one per day even if LNG comprised all the town's power and heating fuel.

In Alaska, Fairbanks Natural Gas averages three loads per day throughout the year to serve its 1,100 customers, with a low of one and a high of six or seven from its liquefaction plant at Point Mackenzie, said Daniel Britton, president and CEO. The state of Alaska's proposed project to truck LNG from Prudhoe Bay to Fairbanks for heating fuel would involve seven daily deliveries at first and eventually up to 30 truck deliveries per day in winter.¹²

(Comparisons between Alaska and Canada deliveries are skewed by the different tanker sizes used. The Alaska tankers carry 9,000 to 11,000 gallons. Yukon Energy and Western Copper hope to use double-trailers called A-Trains that can haul about 25,000 gallons, although such heavy loads beat up roads more and the Canada highway departments haven't sanctioned them yet for the LNG projects. Inuvik expects to use 16,500-gallon tanks.)

A 'PROOF OF CONCEPT' TEST

Yukon Electrical's phase 1 conversion of one diesel generator is ready to go, mainly awaiting approval of its application to the territorial Oil and Gas Resources Branch for a license to install equipment to receive and regasify LNG at the company's Watson Lake power plant.

The plant has six diesel generators. Phase 1 involves converting the smallest, a 0.7-megawatt

turbine. The other five are larger, ranging from about 1 to 1.5 megawatts. The other Watson Lake generators would get converted to dual-fuel — LNG and diesel — if phase 1 goes well.

A year of testing will show whether phase 1 cuts emissions and noise as expected — LNG should burn cleaner and quieter than diesel.

Cost savings probably won't come until phase 2, although fewer emissions from the plant should begin at once, the utility said. LNG should be cheaper than diesel, but too little will be purchased at first for the small generator to more than offset the roughly \$1 million capital cost of converting to dual fuel, company executives said.

Yukon Electrical generates power in a few small towns other than Watson Lake, but mainly it's the territory's largest electricity retailer. It buys most of its power from Yukon Energy Corp., a government-owned business — or "crown corporation," as they're known in Canada.

Yukon Electrical is an arm of Alberta-based ATCO Group,¹³ a Western Canada electricity and natural gas conglomerate. It owns power plants, transmission and distribution lines and local electric companies such as Yukon Electrical. It has big transmission gas pipelines and local gas-distribution companies. Among its other interests, ATCO owns construction businesses in Canada and elsewhere. Revenue in 2012 totaled \$4.4 billion, profits \$372 million.

J.D. Patrick Creaghan is ATCO Energy Solutions special projects vice president, kind of the guy in charge of discerning synergies among diverse and even seemingly unrelated activities.

Take LNG, for example. Will LNG work well at other small power plants? Can it be a smart fuel choice for oil and gas exploration and field development, mines and other high horse-power uses? What is its application to ATCO's gas pipeline and storage businesses? And on and on.

Creaghan calls Watson Lake a "proof of concept" test.

"Smaller-scale liquefaction is something we're interested in understanding," he said.

As for Watson Lake itself, "We're confident Watson Lake will work. The technology is there," he said. With both diesel and natural gas available as fuels, Yukon Electrical will have the option to buy the fuel selling for the best price, he added.

LNG AT THE WHITEHORSE DAM

Up the highway in Whitehorse, Yukon Energy is a smaller business than ATCO but is pursuing a bigger LNG play.

The crown-owned utility is the Yukon's major power generator. Besides its main dam in Whitehorse, it has hydro plants in Aishihik Lake about 70 miles northwest of Whitehorse and in Mayo, about 250 miles north of Whitehorse at a site originally developed in the 1950s to provide power for a silver mine. All the dams have expanded over the years.

Yukon Energy also has diesel generators in Whitehorse, Mayo, Dawson and Faro, as well as two wind turbines perched on Haeckel Hill above Whitehorse.

The company just finished a series of transmission-line extensions that tie this whole system together — the hydro, the diesel, the wind. It's a single functioning unit where all the systems back up each other in providing power and electric heat for much of the Yukon's road system and population.

But this Yukon electrical grid — like Alaska's — is disconnected from the North American grid. It would cost something like \$2 billion in capital spending to plug into the northernmost tentacle of BC Hydro's system, figures Hector Campbell, director of resource planning for Yukon Energy.

Yukon Energy's three hydro plants generate most of the territory's wattage. The eight diesel generators in Whitehorse conceptually are for backup power, but increasingly they get tapped for base-load duty, especially in winter when the Yukon River flow slackens. (Territory-wide, Yukon



Photo courtesy of Yukon Energy Corp.

The Whitehorse dam, foreground, on the Yukon River is the Yukon Territory's biggest energy source, with four hydro generators and seven diesel generators. Whitehorse downtown is in the upper right and the airport is in the photo's center.

hydro energy capacity falls from 77 megawatts in summer to 60 megawatts in winter.)¹⁴

The oldest two diesel generators, installed in the 1960s, are ready for retirement, Yukon Energy says.

After studying their options for several years, utility executives decided on generators that burn natural gas instead of diesel, a \$34.4 million project. They figure if they can install two new gas generators in late 2014, their fuel bill would fall by \$2.7 million in 2015 and by \$4.2 million a year starting in 2017 compared with sticking to diesel. They're also seeking permission to install a third gas generator later as part of this project.

Besides the fuel savings, emissions would fall — less greenhouse gases, less particulates, less

nitrogen oxide. Like Fairbanks, Whitehorse has winter air inversions that trap air pollution, giving a noxious texture to street-level breathing.

In July 2013, the Yukon government took two actions to clear the way for LNG. It raised Yukon Energy's borrowing limits so it could finance the project. It also adopted the gas-processing regulations. Both had been in the works for many months.

In August 2013, the utility filed for an environmental review. In the Yukon, these are done by an 8-year-old federally formed body called the Yukon Environmental and Socio-economic Assessment Board.¹⁵ YESAB is set up as a one-stop agency that will perform this assessment for all agencies — federal, territorial and First

Nations — with oversight. In some ways the YESAB process resembles U.S. environmental reviews done under the National Environmental Policy Act.¹⁶

For this LNG project, an executive committee comprised of the YESAB chairman and several other board members has the lead. That's a higher-level screening than most reviews because this is a bigger project, said Stephen Mills, chairman. The Watson Lake dual-fuel LNG project is much smaller and was assessed by the local YESAB office, he said.

Mills has publicly vowed to try to complete the YESAB assessment by next spring, when Yukon Energy wants to break ground. That would make it one of the speediest YESAB executive committee turnarounds since the agency's work began in 2005, he said. He noted the Whitehorse LNG project in many ways is much smaller in scope and potential environmental/socio-economic impacts than large-scale mining proposals and other big projects the executive committee considers. Also, Yukon Energy has kept the area's two First Nations groups informed on its LNG project, and typically has responded quickly to YESAB requests for more information, he noted.

After conducting its review, the YESAB panel will issue its report to government and First Nations agencies that have permits, licenses and other authorizations pending for the LNG project. The report will make one of three recommendations:

- Accept the project as proposed.
- Accept the project with specific changes to mitigate environmental and socio-economic impacts.
- Reject the project.

If government agencies veer from the YESAB recommendation, they must explain themselves.

ENVIRONMENTALISTS DO BATTLE

The YESAB review promises to be a battleground of sorts for LNG opponents.

The arguments will sound familiar to those who follow the anti-fracking debate in the United States. Concerns about choosing fossil fuels over renewables, about water use and possible contamination. That methane leaks from wellheads and pipelines should be considered with power-plant emissions.

Yukon residents who head south on the Alaska Highway drive right through British Columbia's Liard Basin, a new gas play, so the shale debate is becoming more tangible. The Liard extends north into the Yukon, although drilling hasn't occurred there.

The big win so far for Yukon oil and gas opponents is a drilling moratorium in a basin around Whitehorse, and a review under way of fracking's pros and cons. They also scored some minor concessions on the gas regulations adopted in July.

The opposition appears to be engaged and vocal.

"It is unwise to replace one dirty fossil fuel with another," the Yukon Conservation Society said a few days before a July 2013 Yukon Energy public meeting on its trucked LNG plans.

At the meeting, the utility got an earful.¹⁷

"We should be moving toward renewable energy," one local said.

"I am just really sorry there is this kind of fixation on old-fashioned fuels," another said. "I just wish you guys would do something different."

In mid-September, the conservation society hosted a public lecture in Whitehorse by Canadian journalist Andrew Nikiforuk, author of "The Energy of Slaves: Oil and the New Servitude." The talk's title was "Oil, Gas, Fracking and the Yukon!" The host wasn't sure what turnout to expect and was pleasantly surprised at the standing-room-only crowd of over 100 people. Nikiforuk's message: Humans are hooked on cheap energy, whose era has passed. Today's oil and gas production consumes extraordinary energy. Until humans can wean themselves off fossil fuels, they must tightly regulate the expensive and arguably less planet-

friendly energy plays that remain, such as shale oil and gas.

Anne Middler, the conservation society's energy coordinator, basically described her group's position this way:

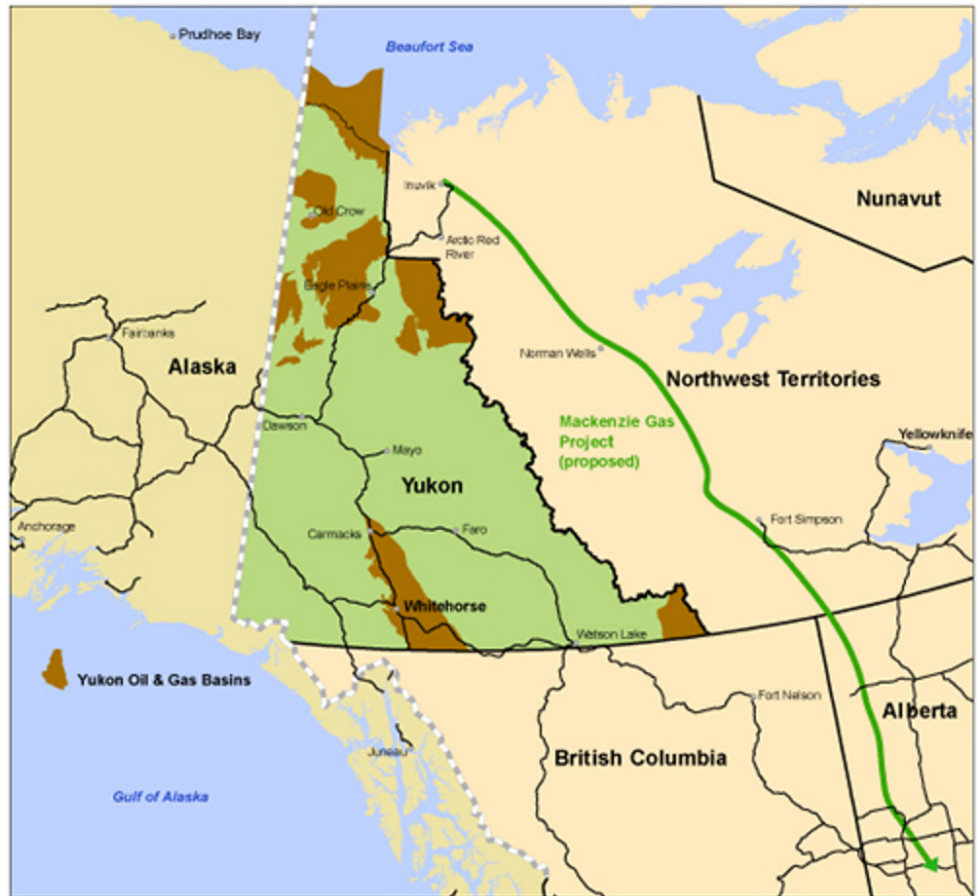
First, adopting LNG as a Yukon Energy fuel will leave little room for renewable energy for the next 40 years. In the short term, better to stick with what the utility knows — diesel, although a cleaner, low-carbon diesel.

Second, LNG could open a gateway to Yukon gas drilling, i.e. fracking. The utilities eventually will want to source their gas locally. And even if they don't buy Yukon gas, eventually they will buy fracked shale gas from somewhere in North America.

Yukon has no natural gas production. The only active explorer is Northern Cross, a company majority owned by China National Offshore Oil Corp., or CNOOC.¹⁸ Northern Cross is targeting a conventional — not shale — play north of Whitehorse called Eagle Plain, which territorial geologists believe holds 6 tcf of natural gas and 437 million barrels of oil.¹⁹

Northern Cross has done some drilling and hopes to shoot 3-D seismic this winter.

Throughout the Yukon, the territory holds an estimated 17 tcf of potential onshore gas resource, including 4.1 tcf in its patch of the Liard down in its southeast corner.



Source: Yukon Territory government, Canada

Yukon Territory has six main oil and gas basins that geologists believe hold 17 tcf of gas. Eagle Plain is in the northcentral. Liard is in the southeast corner. The green line east of Yukon shows the proposed Mackenzie Valley gas pipeline route from Inuvik.

Officials with the Yukon Territory's Oil and Gas Resources Branch acknowledge the lack of a big pipeline — the Mackenzie Valley or the Alaska North Slope line — handicaps large-scale gas development in the region.

But they also believe that getting this resource into production is critical to economic development. Natural gas transforms the economics of potential mines, like Casino, compared with diesel.²⁰ And new mines are the key to new jobs and new wealth for the Yukon, they say.

Notes

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