

New estimate reduces Alaska LNG project cost, but economics still challenging

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An updated cost estimate for the state-led Alaska LNG project has trimmed about \$5 billion from the construction price tag, down to \$38.7 billion.

Though the new estimate, released at the Alaska Gasline Development Corp.'s June 25 board meeting, is 12% below the number of several years ago, it is still significantly higher per tonne of output capacity than most other proposed LNG developments around the world.

At \$1,900 per tonne for the project's designed capacity of 20 million tonnes per year, the cost is higher than Qatar's expansion plans to add almost 50 million tonnes per year to its world-leading output (at \$1,000 per tonne), Russia's Arctic LNG projects (around \$1,100 a tonne with substantial government assistance), expansion of Papua New Guinea's capacity (under \$1,500), or either of three LNG export projects in the works for Mozambique (\$1,500 to \$2,000).

In addition, building a North Slope gas treatment plant, an 807-mile pipeline through the state, and a liquefaction plant and marine facilities at Nikiski would be substantially more expensive per tonne of output than any of the export terminals in operation, under construction or proposed for the U.S. Gulf Coast, generally running \$500 to \$1,000 per tonne. The cost depends whether the export terminal is an add-on to an underused LNG import facility, expansion of an existing liquefaction and export terminal, or a greenfield project.

Capital costs, along with price of feed gas, operating expenses and shipping, drive the economics of LNG export ventures in a highly competitive global market.

Some of the LNG projects built over the past decade have come in higher than Alaska's latest cost estimate, such as the Ichthys project, a gas field offshore Australia that sends its production through a 553-mile subsea pipeline to an onshore LNG plant. Delays and cost overruns drove the cost per tonne over \$2,000 by the time the first cargo left the dock in 2018.

But a significant economic salvation for the Japanese-led project is that at peak production, Ichthys will produce 150,000 barrels a day of high-value condensate and liquid petroleum gas (butane and propane) from the field.

The flow from Alaska's Prudhoe Bay field, which would feed three-quarters of the gas for the project's initial supply, would be dry gas, as most of the rich liquids have been stripped out and shipped down the Trans-Alaska Oil Pipeline over the decades, adding to producer and state revenues.

Where Alaska has a cost advantage over several other LNG suppliers is its shorter shipping distance to North Asia markets. It is about 5,000 sea miles from Nikiski to Tianjin, China, the country's busiest import terminal this year, versus 6,500 miles from Qatar, about 7,300 miles from Mozambique, and 10,000 miles with a Panama Canal crossing from the U.S. Gulf Coast.

The state-owned Alaska Gasline Development Corp. (AGDC), which has been leading the development since North Slope oil and gas producers ExxonMobil, BP, and ConocoPhillips cited

weak economics in withdrawing as participants in late 2016, has worked the past 14 months with contractor Fluor Corp., and with help from BP and ExxonMobil, to refine its plans toward reducing construction costs.

Texas-based Fluor is experienced in LNG plant construction. It is part of a joint venture that was awarded the engineering, fabrication, and construction contract for the US\$30 billion Shell-led LNG Canada project under construction in Kitimat, British Columbia, about 100 miles southeast of Alaska's southern border with Canada.

The Kitimat project is estimated to cost just over \$2,000 per tonne for its first phase with tentative plans for a lower-cost expansion that would improve the project's overall economics. The development includes a 416-mile pipeline to deliver gas from producing fields in the far northeastern corner of British Columbia.

The Alaska LNG cost estimate does not include the additional expense of building out gas production at Point Thomson, which would feed about one-quarter of the project's initial gas supply. The field operator, ExxonMobil, has not publicly disclosed the development costs for expanding Point Thomson beyond its current capacity of up to 10,000 barrels a day of condensate while reinjecting the gas into the reservoir.

Designing and building multibillion-dollar LNG projects can be a risky business for contractors. McDermott International, which built the Cameron LNG project in Louisiana for a Sempra-led venture, filed for bankruptcy protection in January. Its financial struggles included cost overruns and delays at Cameron, which shipped its first cargo last year.

Houston-based KBR, with contracts in hand to build proposed LNG terminals in Texas, Louisiana and Nova Scotia, announced June 22 it will exit most of its LNG construction business, focusing instead on the financially safer work of government contracting. It will "no longer engage in lump-sum ... construction services," KBR said, adding that the COVID-19 pandemic accelerated its decision to leave fixed-contract energy projects.

Looking to get the state out of the role of project leader for the cost-challenged Alaska project, the AGDC board at its April meeting adopted a strategic plan that calls for finding a private developer or team of developers to take over from the state as lead on the venture. The board of directors "does not support" the state continuing as the sole project sponsor past Dec. 31.

LNG in Asia has been selling at record lows under \$2 per million Btu on the spot market this spring and early summer, about one-third the peak of last winter and far below the cost of gas supply and transport for U.S. Gulf Coast LNG to make any money.

Those prices would have to more than triple to cover the cost of LNG from Alaska. And though prices in Asia were close to that level at their high point last winter, improved prices would help every other proposed LNG development worldwide, not just Alaska.

Additional supplies from projects on the Gulf Coast and Australia, along with weakened demand due to the worldwide coronavirus-induced economic slowdown, have left the market awash in too much gas, with analysts speculating when demand might return and when new supplies might be needed.

If the state corporation cannot find someone interested in taking over the venture, it would "put the Alaska LNG project assets up for sale" in a formal bidding process, according to the staff presentation at the April 9 board meeting.

AGDC staff told the board at the June 25 meeting that the cost savings under the updated estimate came from lower market prices for equipment, better strategies for contracting, more efficient liquefaction technology, and reduced risks that allow a smaller contingency.

Staff also told the board that if the old \$44 billion estimate were adjusted for inflation to match the 2019 dollars of the new \$38.7 billion projection, the comparable savings would be slightly over \$8 billion.

Staff further explained to the board June 25 that additional cost savings in annual operating expenses could be achieved by reducing the project's payments to cities and boroughs promised in lieu of property taxes. Federal loan guarantees could lower the cost of borrowing money to build the project, staff said, though congressional approval would be required if the intent is to amend a 2004 law that provided such guarantees only for an Alaska project that delivered gas to the Lower 48 states.

While confronting the economic realities of Alaska's decades-long dream for a North Slope natural gas project, AGDC also faces two challenges to its federal authorization for the LNG project.

The Matanuska-Susitna Borough on June 19 filed a request for a rehearing with the Federal Energy Regulatory Commission, which approved the Alaska project on June 6. The borough has spent the past several years advocating that its property at Port MacKenzie, across Knik Arm from Anchorage, is a better site for the LNG plant than Nikiski, about 60 air miles to the southwest on the Kenai Peninsula.

The Matanuska-Susitna Borough has asked FERC to rehear its action and order a supplemental environmental impact statement to correct alleged errors in the review that unfairly handicapped consideration of Port MacKenzie. The project team selected Nikiski in 2013, a decision which the borough has criticized as based on bad information.

Three days after the Mat-Su filing, the Center for Biological Diversity and Earthjustice filed a 142-page request for a rehearing, alleging "FERC approved the project without properly considering whether it is in the public interest and without properly examining its numerous harmful environmental impacts."

The environmental groups filed the request on behalf of the Sierra Club, the Northern Alaska Environmental Center, and the Chickaloon Village Traditional Council.

Among the issues cited in the filing, the groups criticized FERC for not considering the project's impacts on North Slope gas production and the greenhouse gas emissions from increased production and consumption of natural gas.

The environmental groups and the Matanuska-Susitna Borough are official intervenors in the FERC docket, and only intervenors can request a rehearing and, if unsuccessful, take the matter to federal court.

Under FERC regulations, if the commission fails to respond to a request for a rehearing within 30 days, the request is denied.