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Small-Scale Canadian LNG Projects Quietly Growing as an Alternative Power Source

By Michael Laffin and Paul Blyschak

The development of Canada's liquefied natural gas (LNG) export industry has attracted much attention in recent years as large and mid-scale LNG export projects in British Columbia and Eastern Canada have shifted from a surge in initial project development to increased uncertainty in the face of depressed global LNG prices. What has attracted less attention over this time is the slow but continuous growth of Canada's domestic LNG market as LNG gains traction as an alternative power source for both remote resource projects and remote communities.

LNG AS AN ENERGY SOURCE FOR REMOTE AREAS

A report submitted by ICF International to the Canadian Gas Association in 2016, titled *Economic and GHG Emissions Benefits of LNG for Remote Markets in Canada* (ICF Report), surveyed the Canadian market potential for smaller-scale LNG projects and operations as a source for power generation in remote areas.

The ICF Report addressed the areas where LNG could be used as a substitute for other fuels like diesel for power generation and reasoned why LNG can be an attractive alternative to such traditional fuels. It found that "approximately 200,000 people live in nearly 300 remote communities spread across Canada that are disconnected from central energy supplies."

According to the ICF Report, these remote energy markets are "off-grid" regions of Canada that are not connected to the North American electrical grid or to natural gas distribution pipelines. This includes both remote communities and remote industrial energy users, such as mines. In these remote regions, reliable and cost-effective energy supply is a challenge for communities and industry, and serves as a barrier to economic development.

The ICF Report found that these remote communities and industry "typically rely on diesel, propane, or other fuel oils for heating and to generate their own electricity, all of which have to be shipped in by truck, rail, or marine vessel" and that many are increasingly considering LNG as an option to meet their energy requirements:

> "Advances in the technology used to liquefy, transport, and re-vaporize natural gas, have made LNG a viable option for remote customers. . . . Although LNG has many advantages, including environmental and safety benefits, cost savings are the primary driver of its adoption. In recent years, due to low natural gas prices, LNG has emerged as an affordable alternative to diesel or fuel oil in remote communities and mining sites."

For energy lawyers, the growth of small-scale LNG in Canada therefore begs the following two questions:

1. To what extent does the value chain in small-scale, local LNG operations differ from the value chain in large-scale LNG export projects?
2. To what extent do such differences impact considerations relevant to the various contracts comprising the small-scale LNG value chain compared to the various contracts comprising the value chain of large-scale LNG export projects?

A COMPARISON OF LARGE- AND SMALL-SCALE LNG PROJECTS

As discussed in our June 2016 *Blakes Whitepaper: Canadian LNG from a Global Perspective*, different international jurisdictions have witnessed the development of varied formulations of LNG projects and value chains. In other words, LNG export projects can take various forms or "project structures" and involve different combinations of upstream natural gas producers, pipeline companies, liquefaction facility owners, maritime transportation companies and downstream utilities, each with their own set of objectives and potentially complementary or conflicting interests. Therefore, a point of stark contrast between large-scale LNG export projects and small-scale, local LNG operations is the degree of complexity involved.

A brief example is illustrative. One of the more common project structures for Canadian large-scale LNG export projects is that of the "integrated" project model, which is typified by multiple project proponents owning a consistent percentage of different components along the LNG value chain. For example, four energy companies may create a series of joint ventures pursuant to which each of them:

- Owns a 25 per cent interest in the project's upstream natural gas production
- Owns a 25 per cent interest in the pipelines and processing facilities linking the upstream production to the liquefaction or export terminal
- Owns a 25 per cent interest in the liquefaction or export terminal
- Is entitled to 25 per cent of the LNG offtake from the terminal, which they then either sell to downstream purchasers or use as feedstock in their own power-generation facilities.

Small-scale LNG projects and value chains are likely to be less complex on a number of levels.

First, upstream natural gas production will not factor into small-scale LNG operations in the same way as a large-scale LNG export project. Small-scale LNG projects will require natural gas production, but such natural gas will not be produced for the primary purpose of feeding LNG production. Rather, such feedstock will typically be intended to feed general regional market demand for natural gas, of which liquefaction into LNG for small-scale sales arrangements will be only one of a myriad of potential uses.

Second, while small-scale LNG projects and operations will require natural gas pipelines and processing facilities to transport the natural gas from the point of production to the point of liquefaction, it is unlikely that the great majority of such pipelines and processing facilities will be new-build infrastructure as is the case with large-scale LNG export projects. Rather, small-scale LNG operations are likely to take advantage of existing natural gas

transportation and processing infrastructure, with the possible exception of new-build small-scale liquefaction facilities at strategic locations along such existing infrastructure.

Third, small-scale LNG offtake arrangements are likely to be of shorter terms and involve less complex conditions than offtake arrangements from large-scale LNG export projects. Offtake agreements in large-scale LNG export projects commonly involve minimum terms of 15, 20 or 25 years, such extended terms being necessary to underwrite the large capital expenditures necessary to build the project's liquefaction facility and other infrastructure. It is also common for LNG offtake arrangements from large-scale LNG projects to involve destination restrictions that only allow buyers to transport the LNG to pre-determined regasification facilities or specified regional markets. Such restrictions also go toward project viability and project sponsors' desire to prevent downstream buyers from indirectly competing with the project. Offtake arrangements in small-scale LNG projects are unlikely to be nearly as lengthy or restrictive, given that the LNG purchase and sale arrangement will unlikely be underwriting large capital expenditures, and the purchaser will likely be seeking to supply a single "off-grid" project, development or community without interest in any forward sales or other market opportunities.

LESSONS FROM LARGE-SCALE LNG PROJECTS

Despite these differences, there are many lessons from large-scale LNG export projects that can be applied in small-scale, local LNG operations. Indeed, much of the large-scale LNG "virtual pipeline" composed of longer-term purchase and sale arrangements and maritime transportation arrangements remains applicable to the small-scale LNG "virtual pipeline" composed of shorter-term purchase and sale arrangements and overland vehicle transportation arrangements.

First, close coordination of the terms of the LNG purchase and sale agreement (LNG PSA) and the LNG transportation agreement will be essential to the LNG buyer in both large-scale LNG export projects and small-scale, local LNG operations, including to ensure continuity of LNG supply and avoid disruptions in power generation.

Therefore, just as is the case in large-scale LNG export arrangements, buyers of LNG in small-scale transactions will want to ensure that their transportation service provider is obligated to:

- Meet all delivery/receipt windows and schedules established under the LNG PSA
- Keep its vehicle delivery fleet in good repair and maintain minimum levels of insurance coverage
- Comply with the LNG seller's loading protocols and other safety regulations and policies
- Regularly communicate with both the buyer and seller as required to ensure timely receipt and delivery of LNG, including to inform the buyer of any breach by the seller of its obligations under the LNG PSA or any other development that could adversely impact receipt and delivery schedules.

The LNG buyer will also want to include appropriate indemnities and other risk allocation provisions, including with regard to any liabilities or damages that would result from delivery interruptions that are the transporter's fault (e.g., related to interruptions in production at the LNG buyer's mine).

Second, both the LNG seller and buyer will want to ensure that the terms of the LNG PSA meet their commercial objectives without exposing them to undue risks or unreasonable costs. Furthermore, just as is the case in large-scale LNG export arrangements, this calculation — as well as the specific contractual terms and conditions by which it is achieved — will depend on the particular circumstances of both the LNG buyer and seller.

The buyer, for example, may wish to build in a certain amount of flexibility into its demand profile, whether in the form of a staged increase of its consumption at the

front end of the LNG PSA's term (e.g., as the operations of the buyer's mine are progressively brought online) or in the form of lower demand over the back end of the LNG PSA's term (e.g., by which time alternate LNG suppliers are expected to have entered the local market).

The buyer may also want to build in flexibility within the quarterly delivery periods comprising a contract year within the LNG PSA's overall term (e.g., because it anticipates seasonal variability in the amount of LNG it will require due to temperature fluctuations). A potential solution in such circumstances will be the option for the buyer to schedule as little as 15 per cent or as much as 35 per cent of its annual offtake during any particular quarter, provided it commits to scheduling the entirety of its annual offtake across all four quarters.

The LNG seller, by contrast, will likely want the buyer to commit to receiving its annual offtake commitments on a "take or pay" basis, including to ensure it is not prejudiced for reserving output capacity to an LNG buyer when it could be dedicating its LNG supply to alternative market opportunities. Another key question for the seller is whether the LNG buyer will be permitted to re-schedule LNG volumes it did not take delivery of, but has paid for under the "take or pay" principle, as well as whether the buyer should be able to roll over such LNG credit volumes indefinitely over the term of the LNG PSA or for a limited amount of time (e.g., no more than two quarterly delivery periods).

Third, the LNG seller will want to consider achievable limitations on its liability for failing to make LNG available at scheduled delivery times, whether by stipulating that liability will only accrue once a minimum number of missed LNG deliveries have occurred (e.g., three or more in any quarterly delivery period) or by stipulating that responsibility for extra costs incurred by the LNG buyer stemming from missed deliveries will be shared among the buyer and seller pursuant to a predefined allocation (e.g., 70 per cent as to seller and 30 per cent as to buyer). Risk allocation can be staggered or subject to other variability (e.g., once the LNG seller has missed four deliveries in any quarterly period its share of responsibility will increase to 100 per cent until it re-establishes reliable delivery for a minimum period of time).

CONCLUSION

At the overall project level, there is much that distinguishes small-scale, local LNG operations from large-scale LNG export projects, with the latter being subject to potentially far more complicated project structures and project dynamics among the various potential project participants. Nonetheless, there is much to be learned from large-scale LNG export projects that can be applied in small-scale, local LNG operations, particularly regarding the coordination of the terms of LNG PSAs with the terms of associated LNG transportation agreements, and the different LNG PSA terms and conditions that can assist both LNG buyers and sellers in meeting their commercial objectives while minimizing exposure to undue risks or unreasonable costs.

CONTACT US

Michael Laffin
403-260-9692
michael.laffin@blakes.com

Paul Blyschak
403-260-9704
paul.blyschak@blakes.com