



Movin' Out—Exporting U.S.-Sourced LNG from the Maritimes

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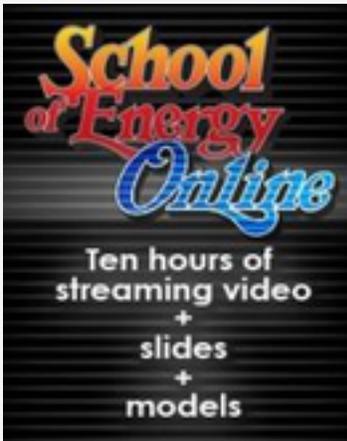
With Marcellus natural gas production expected to continue increasing, several companies are proposing projects to pipe a portion of the output through New England to Canada's Maritime Provinces, where the gas would be liquefied and exported to Europe, Latin America and maybe even Asia. Some offshore Atlantic Basin gas production from Sable Island and Deep Panuke would be mixed in too. Such plans for as many as four new LNG export facilities in Nova Scotia and New Brunswick hinge on the development of new pipeline capacity through New England to the existing Maritimes & Northeast Pipeline (MNP), which would be reversed to flow north. Is this a golden opportunity or an overreach? Today we examine prospects for exporting Marcellus gas through new Eastern Canadian LNG facilities.

It is no secret that natural gas markets in the U.S. Northeast and the Canadian Maritimes have been turned on their heads the past few years. Back in 2000, virtually all of the gas consumed in the Mid-Atlantic States and New England was piped in long distances, mostly from the Gulf Coast, and the Sable Offshore Energy Project (SOEP) was just starting to move gas from off the Nova Scotia coast down into New Brunswick and New England via the new Maritimes & Northeast Pipeline (MNP). Fast-forward 14 years and Marcellus gas has come to dominate the northeastern U.S., the flow of Gulf Coast gas into the region has slowed, SOEP output is declining, and gas from Deep Panuke--the newer offshore production area in the Maritimes—is facing competition it had not expected in New England. The MNP itself, which was built primarily to move SOEP gas down to near

Boston, is likely to be flowing north before long.

The Opportunity

As we said in “[Is Deep Panuke Gas a Case of ‘Right Place, Wrong Time’?](#)” gas from offshore Nova Scotia that has been flowing into New England through the MNP is not likely to be doing so for long, given the increasing volumes of Marcellus gas moving into the six-state region. Gas from SOEP, whose production has been declining since 2008, also will have increasing trouble finding New England buyers once they have a Marcellus alternative. In the circumstances at least four companies have identified an opportunity to build LNG export facilities in the Maritimes. Their take is that such plans would guarantee a market for SOEP and Deep Panuke gas by liquefying it and shipping it overseas where prices for LNG are at a premium to the US and Canadian market (see [More Than A Feeling](#)).



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Additional gas flows through New England from the Marcellus would provide these export schemes with an abundant source of gas to supplement SOEP and Deep Panuke production volumes and ensure competitive export prices. One additional benefit for these schemes is that the Canadian government approval process for LNG exports could be more streamlined than the complex US process that requires case-by-case approval from the Department of Energy (DOE) and the Federal Energy Regulatory Commission (see [The Molecule Laws](#)). **Exporting Marcellus gas to Canada before liquefying into LNG would by-pass the US**

regulatory jurisdiction.

Pieridae Energy (Canada) Ltd. has been developing a project to export up to 10 million metric tons per year (MMtpa) or 1.5 Bcf/d of LNG from a proposed LNG terminal in Goldboro, Nova Scotia (see Figure #1), and things are starting to come together. In July 2013, Pieridae signed a 20-year deal under which E.ON Global Commodities SE, a subsidiary of the German energy giant, will take 5 MMmt/y, or half the Goldboro project's capacity. In March 2014, Pieridae received "environmental assessment" approval for the project from the Nova Scotia government. The same month, Pieridae submitted an application to Canada's National Energy Board to import up to 1 Bcf/d of Marcellus natural gas into the Maritimes through existing pipelines (MNP chief among them), and to export up to 1.4 Bcf/d as LNG from its planned Goldboro terminal to buyers overseas. The gas needs of the LNG export terminal would come from SOEP, Deep Panuke and the northeastern U.S., depending on availability and price. If all goes well, the first of two planned LNG "trains" at Goldboro could start up as soon as 2019; the second could come online six months after that.

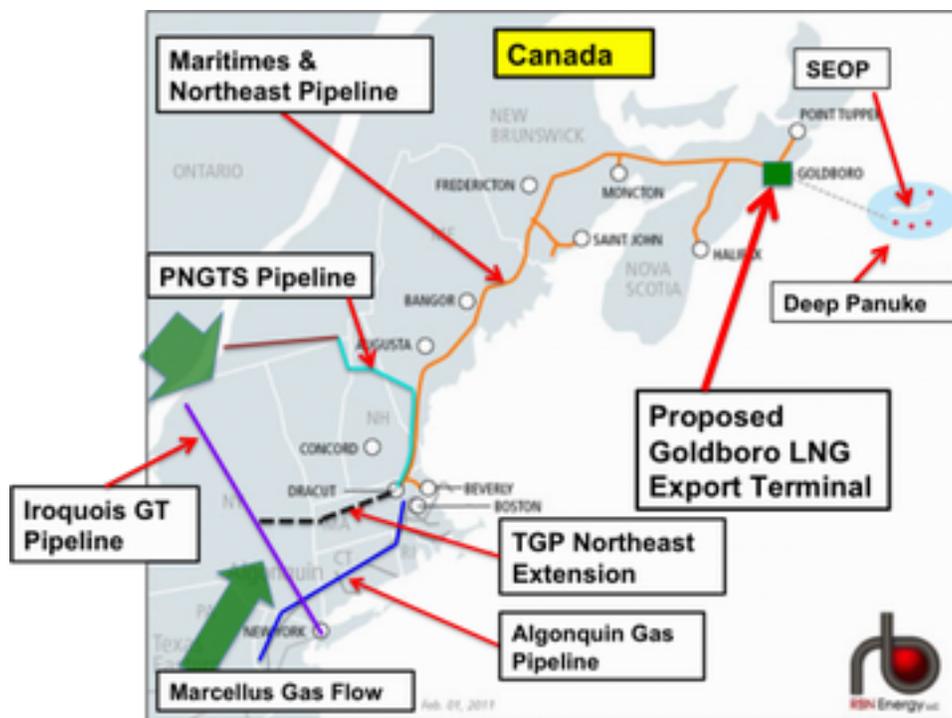


Figure #1

Source: RBN Energy (Click to Enlarge)

Supply Challenge

One of the biggest challenges Pieridae faces (so with the other export-minded companies we will get to) is getting enough gas from the Marcellus through the New England pipeline infrastructure to the MNP. As we discussed in [Part 1](#) and [Part 2](#) of our “Please Come to Boston” series and in “[Polar Vortex Spurs Catch-22 Workaround](#)” there is currently not enough pipeline capacity in place to deliver all the Marcellus gas New England needs, let alone capacity to move an additional 1 Bcf/d of Marcellus gas through New England to feed LNG export projects in the Maritimes. However, two planned pipelines could help provide what would be needed by the time the proposed Goldboro project comes online in 2019. One is Kinder Morgan’s proposed Northeast Expansion, a new, 150-mile pipeline from Wright, NY (near Albany) to Dracut, MA (see black dashed line in [Figure #1](#)). Dracut is one of the two southern termini of the MNP; the other is Beverly, MA, a few miles to the east, where MNP is linked to Algonquin Gas Transmission’s (AGT) HubLine (blue line in [Figure #1](#)).

The second pipeline project that could help deliver gas through New England is Spectra Energy’s Atlantic Bridge, a planned expansion of its AGT and MNP systems. Atlantic Bridge would build on the Algonquin Incremental Market (AIM) project, which will add up to 342 MMcf/d of capacity to the existing AGT pipeline through New York, Connecticut, Rhode Island and Massachusetts by 2016. Atlantic Bridge would enable shippers to move gas from Millennium Pipeline system at Ramapo, NY or the Texas Eastern Transmission pipeline system at Lambertville, NJ to existing and new delivery points on AGT and MNP—all the way to the Maritimes. Kinder Morgan’s Northeast Expansion and Spectra’s Atlantic Bridge each would add sizeable capacity: up to 1.2 Bcf/d for the former and up to 600 MMcf/d for the latter. A [November 2013 ICF International White Paper](#) for the New England Independent System Operator forecast New England gas demand in 2019 – including new power generation projects – at 1.1 Tcf/year or ~ 3Bcf/d. If the Kinder Morgan Northeast Extension as well as the Spectra AIM and Atlantic Bridge expansions are completed then incoming pipeline capacity into New England would total ~7.5 Bcf/d. That

means on paper at least there should be adequate capacity to supply an incremental 1 Bcf/d through New England to LNG exports from Goldboro. Of course demand from local distribution companies and power generators within New England will likely peak much higher than 3 Bcf/d in the winter months, constraining available supplies for export. But typical summer and shoulder-month loads should provide more than enough capacity for the export volumes.

Demand for LNG Exports

E.ON Global Commodities is a major player in supplying LNG to Europe, and presumably would take its 50 percent share of Goldboro’s LNG production straight across the Atlantic. In its effort to find others willing to make long-term commitments to take LNG from Goldboro, Pieradaes is highlighting not only the potential low cost of its largely Marcellus-based LNG but the short shipping distances to LNG import terminals throughout Europe and even as far away as India. As Table #1 shows, the shipping time from Goldboro to key ports “across the pond” are roughly half the time it takes to ship LNG from Qatar in the Middle East which would be a major competitor in the European market. Pieradaes is also touting South America as a potential market.

Destination Port	Country	Days Shipping		
		Lake Charles	Qatar	Goldboro
Zeebrugge	Belgium	10.90	14.50	6.50
Isle of Grain	United Kingdom	10.80	14.50	6.50
Fos Sur Mer	France	12.00	10.50	7.60
Montoir	France	10.40	14.10	6.20
Bilbao	Spain	10.70	13.50	6.00
Barcelona	Spain	11.60	10.50	7.50
La Spezia	Italy	12.50	10.20	8.30
Mangalore	India	22.00	4.00	18.00

Table #1

Source: Pieradaes Energy Project Presentation (Click to Enlarge)

So it seems that although there are a lot of moving parts – not least on the regulatory front, the capacity to supply Marcellus gas to the Goldboro project through New England could be available to meet the project needs and there are shipping advantages to meeting European LNG demand from Nova Scotia. At any rate, Pieridae and E.ON Global Commodities clearly believe the Goldboro LNG project is worth pursuing. And at least three other companies are considering Maritime LNG export projects. One is H-Energy, a subsidiary of Indian conglomerate Hiranandani Group, which is eyeing a possible project close to Goldboro. Another is Repsol Energy Canada, the majority owner of the existing Canaport LNG import terminal in New Brunswick. Repsol already has in hand short-term approval from the NEB to export LNG from the site. Yet another is Anadarko Petroleum, which may revive a version of the LNG import project in Bear Head, Nova Scotia that it shelved in 2006. Next time, we will look at their plans, and examine in more detail the case for—and against—exporting even more U.S. shale gas as LNG.