SUMMARY OF POTENTIAL ECONOMIC AND FISCAL IMPACTS ON THE PASSAMAQUODDY BAY REGION OF AN LNG IMPORT TERMINAL

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Is it possible to limit the economic and fiscal impacts of an LNG import terminal to a single town?

It is not possible to limit the economic and fiscal impacts of an LNG import terminal to a single town at any site in the United States portion of the Passamaquoddy Bay region. Impacts will be felt by towns in the United States, Canada, and the Passamaquoddy Nation. This is due to a combination of the region's geography and the infrastructure requirements and risk factors associated with LNG. Any town's decision to become a host community for an LNG import terminal will have significant economic and fiscal consequences throughout the region because of shipping routes and piers, pipelines, changes to regional character, and risk factors.

The shipping route for LNG will pass through Canadian as well as American waters. The two mile radius of concern around shipping lanes due to the hazardous nature of LNG will affect more than one town in the United States and Canada, even if the facility were located at the southernmost proposed site. The shipping route for facilities further north will impact even more towns, parishes, and villages, as well as create further disruptions in access to fishing grounds. Piers larger than any that currently exist on Maine's coast will result in narrowed shipping channels that will affect all traffic in the Western Passage, regardless of its origin or destination. Pipelines will have to run through more than one town to connect the shoreline receiving facility with the inland Maritimes and Northeast natural gas pipeline The facilities associated with an LNG terminal, specifically the pier, the vessels, and the storage tanks, are far larger than other built structures in the region today. Large scale structures used to support heavy industry will be visible beyond the boundaries of a single town and will change the rural character of the region, even if introduced in a single location. Costs of addressing security issues associated with LNG shipping, import terminal(s) and additional pipelines will be spread throughout the region since communities along the entire transit route will need to be able to communicate with each other and respond effectively in the event of an emergency.

What would one or more LNG import terminals in the Passamaquoddy Bay region likely mean in terms of added costs for the host community and communities in the region?

Potential host communities in the Passamaquoddy Bay region all have populations under 4,000 and most have populations under 1,000 with the limited town, fire, police, and emergency response staff and taxing capacities typical of small rural communities.

Any of the small rural communities in the Passamaquoddy Bay region that hosts an LNG import terminal will face increased costs of local emergency planning and related infrastructure (notification systems, shelters, emergency kits, drills), police protection
(on land and water), fire protection (for land and marine fires), and emergency medical services. The cost of an Emergency Medical Services base for a host community has been estimated at $700,000. The local cost of public safety for LNG tanker arrivals and departures is estimated at $12,500 for every tanker and $1.76 million for 141 ships per year. Communities without police boats will have to invest in them.

At least five schools on the U.S. side and two schools on the Canadian side are within two miles of a potential terminal site or LNG vessel route. Towns will want to consider relocating schools and fire stations to ensure public safety in the event of an accident or attack on LNG facilities or vessels.

A town that hosts an LNG facility will experience a significant increase in both revenues and costs which will require additional staff to manage. Staffing requirements are likely to include a finance director, assessor, emergency planner, police protection and overtime pay for maintaining security during construction and shipping, full-time firefighters and emergency medical technicians trained and equipped to deal with LNG and related substances. Smaller communities that currently lack town managers may need to add this position as well. Previous studies and the experiences of other LNG terminal host communities suggest these costs will run around $3-$5 million. Approximately $1.5 million will be annual recurring staff-related costs. In some communities, these costs alone would more than double annual municipal expenditures. Generally towns that experience an increase in industrial development also experience an increase in population with a net result of increases in tax rates despite a larger tax base. For example, with the exception of Calais, Pleasant Point, Eastport, and Lubec, most Passamaquoddy Bay communities in the U.S. do not have centralized water and sewer systems.

These systems may be required to accommodate construction workers who choose to live locally during the construction period.

In Passamaquoddy Bay, an effective local response will depend on well-developed regional resources. Areas that will require substantial additional regional investment include: county emergency planning and bi-national emergency planning including Maine, New Brunswick, Charlotte and Washington Counties, and towns, villages, and parishes. A coordinated marine-based firefighting capacity, including equipment and training, would have to be developed virtually from scratch, though some of the pieces exist.

Effective response systems depend on effective communications systems. The cost of achieving the capacity for secure emergency communications in real time between two countries, two counties and multiple towns' police, fire and emergency services personnel may be in the millions of dollars. The backbone for a network for the State of Maine is expected to cost $50 million with additional spending by counties and localities, and this does not take the international dimension into consideration. A reliable estimate of costs will only come if and when the relevant agencies and partners have undergone a planning process specific to LNG. The process itself will cost everyone involved.

Police protection will also need to expand during construction when hundreds of additional people will arrive. Additional police will be needed to provide protection for ships on land and on water. The annual cost for additional police protection is estimated at $655,200 to $2.6 million. Additional professional firefighters will cost the region an estimated $378,000 to $793,000 a year (salary and benefits), while 4-6 new fire trucks will run $900,000 to $1.35 million. Training will cost at least $25,000 and will need to be repeated periodically. This does not include the cost of relocating the seven fire departments currently located on or near the shore in the path of LNG shipping. Costs for school and/or fire station relocation and increased road maintenance will also be imposed on surrounding communities.

Many towns have pre-existing conditions including inadequate town office space or space in disrepair; additional staff needs; inadequate roads, water systems, storm drainage systems; limited waterfront access, etc. that will be exacerbated by the influx of workers. Unless and until there is a signed contractual agreement with a developer specifying exactly what costs the developer will cover and under what conditions, towns should not assume that developers will pay for everything. In particular, developers are not likely to pay for any costs associated with pre-existing conditions, nor are they likely to pay the full cost of improvements that yield benefits beyond those required by LNG.

Even once an agreement is in place, towns will need to set aside sufficient resources for effective enforcement of any agreement.

Cost increases in the host community may be partially offset by an increase in local property tax revenues; cost increases in other communities in the region will not. As costs go up, property tax burdens may rise.

What is the likely impact of an LNG terminal on property values in the Passamaquoddy Bay region?

The value of property in Passamaquoddy Bay towns exceeds the value of buildings and is the principle fiscal asset of each town. Waterfront property is particularly valuable. Anything that threatens to diminish the value of property, particularly the most valuable property along the shore, threatens the long-term fiscal health of towns. LNG terminals are sited on the waterfront. Their presence is likely to reduce the value of adjoining lands and lands within a two mile radius. In addition, by decreasing perceived safety and real access to the waterfront and waterways, LNG terminals will reduce the value of shoreland along the shipping route. The value of inland properties crossed by natural gas pipelines may also be affected.

There are 186 properties in Calais that would be affected at an estimated reduction in property values between $480,000 and $1.26 million. There are 573 properties in Robbinston that would be affected at an estimated reduction in property values between $1.89 million and $4.86 million. There are 375 properties in Eastport that would be affected at an estimated reduction in property values of between $820,000 and $2.36 million. These figures are based on a 20-35% reduction in the value of properties right next to the site, a 10-25% reduction in the value of properties within a mile of the site, and a 5-15% reduction in the value of properties within two miles of the site.

The value of up to 1,912 U.S. properties would be affected by the shipping route for LNG tankers. That number falls to 1,428 properties if the LNG terminal is located near Eastport instead of further north. Reductions in property value associated with the shipping route range from $3.9 million to $7.88 million for the northernmost site and from $2.87 million to $5.75 million for the southernmost site. Canadian properties within two miles of the shipping route will also experience similar effects.

Property owners whose property is crossed by a natural gas pipeline typically give up the use of a 50 foot right-of-way after construction. Municipalities that

have experienced pipeline failures are instituting greater setback requirements. Property owners continue to pay taxes on property crossed by a natural gas pipeline despite restrictions on its use. We estimate that between 103 and 184 acres will be affected by pipeline-related land use restrictions, depending on the location of the LNG terminal.

Reductions in property value affect individuals as well as communities, since property is the most valuable financial asset in many households.

How many jobs would an LNG terminal provide and to whom?

LNG facilities are generally built by large, highly experienced contractors who specialize in projects in the $500 million range. These firms are in the industrial classifications for heavy and civil engineering construction and specifically oil and gas pipeline and related structures. There is only one firm in the State of Maine listed in the oil and gas pipeline and related structures category of the North American Industrial Classification System (NAICS) construction category that has more than 20 employees. The largest project totals reported by the one heavy and civil engineering construction firm in Maine with dock and oil drilling rig construction experience was in the $70 million to $150 million range. This firm has no LNG terminal construction experience. Similarly, Maine firms experienced in dock and pier construction are mostly small firms with fewer than five workers. Only six firms employ between 20 and 49 workers.

Given these conditions, we estimate that $92 million will be spent to bring construction workers in from out of state, $24.2 million will be spent on workers within Maine but outside Washington County, $19.1 million on workers within Washington County but outside the study region, and $3.3 million ($1.1 million a year for three years) on workers within the study region. The construction jobs most likely to be available to local and regional firms will be in providing non-specialized electricity, heating, and plumbing to support buildings and warehouses or in access or interior road construction or site preparation. Assuming local workers earn an average of $40,000 a year (including benefits) each LNG terminal could provide approximately 27 jobs per year to current residents. There were 471 unemployed people in the region in 2000. This number of jobs provided by an LNG terminal does not take into account jobs lost in other sectors such as fisheries and tourism. Given a year 2000 median household income of $24,149 for households in the U.S. portion of the region, this would represent a temporary boon to a limited number of households.

As in construction, the skills required to operate an LNG import terminal are

scientific, technical, and highly specialized. There is a global market for people with these skills, and they typically command high salaries. For example, an LNG tank engineer requires 15 years of experience as a mechanical engineer with tank design experience in the LNG industry and commands $110,000 plus a 50% bonus. Most of the approximately 40 permanent staff positions estimated for operation of a generic LNG import terminal with a $500 million construction budget will go to people who do not currently live in the Passamaquoddy Bay region. We estimate there will be approximately 8 jobs in administration, personnel, security and maintenance available for local residents at pay levels ranging from $30,000 to $40,000 a year (including benefits).In addition, there may be some jobs for local tug boat operators, once these operators receive specialized training required for piloting the type of tug boat used with LNG vessels. This number of jobs provided by an LNG terminal does not take into account jobs lost in other sectors such as fisheries and tourism.

Although approximately two-thirds of the population of the Passamaquoddy Bay region live in Canada, Canadians are unlikely to benefit from employment at an LNG terminal located in the United States during the construction or operation phase due to visa restrictions.

The estimated 27 construction and 8 operations jobs likely to be available to local people from a generic LNG terminal does not take into account jobs lost in other sectors such as fisheries, tourism, and real estate.

How would the presence of one or more LNG terminals in the Passamaquoddy Bay region bolster or undermine other economic development options?

Experts on both sides of the international border identify the natural resource base of the Passamaquoddy Bay region as its greatest asset. Strategies to build on this asset include encouraging tourism, retirees and second home owners; small to medium scale manufacturers that add value to local resources, particularly fish and forest products; local businesses to support the local population; and developing indigenous energy resources.

Liquid natural gas is not a local natural resource. The purpose in bringing liquid natural gas into the Passamaquoddy Bay region is not primarily to foster economic development in the region but rather to export this non-indigenous resource out of the region to more populated areas and thereby capture highly lucrative markets for the owners of these facilities.

The infrastructure and operations required to import liquid natural gas into the Passamaquoddy Bay region and then export it to markets outside the region could undermine assets identified as keys to strengthening the local economy. For example, safety and security is one of the key attractions for retirees and second home owners. Due to the safety risks associated with liquid natural gas and natural gas pipelines, an LNG terminal in the region will reduce the perceived safety of the area, and make it more difficult to attract retiree/second home owners, their assets, and their disposable incomes.

It has been estimated that increased tourism could bring an additional $4.9 million annually into the Downeast region. Tourists are attracted by well-promoted, quaint, small-scale infrastructure with historic significance, the type that abounds in the Bay region. An LNG terminal is a large-scale industrial facility that will change the perceived rural character of the region and create areas on land and at sea that are no longer accessible to tourists. In addition, any degradation of the environment that may result from construction and operation of a large-scale industrial facility will undermine the region's appeal to tourists as well as residents. Increased traffic will create additional hazards for bicyclists along the region's scenic roads. Shipping associated with an LNG import terminal will interfere with access to fishing grounds and aquaculture sites.

Natural gas is already available to industry through the Maritimes and Northeast pipeline. Thus far, the economics of its use have not proved favorable for local businesses, including Domtar. An LNG terminal will not, by itself, change that equation. It is quite possible that the region's energy needs may be met through a combination of conservation, wind energy, tidal power, and biomass, all of which are based on indigenous energy resources. By using indigenous resources to supply its energy needs, the Passamaquoddy Bay region has the opportunity to achieve energy independence.

The economic stimulus provided to the region by one or more LNG import terminals will be limited. A more thorough study is required to determine the extent to which any economic gains that do result may be offset by damage to existing sectors and may create new obstacles to future economic diversification and sustainability.

Note: All dollar figures in this report are in United States dollars.