

Mémoire soumis au BAPE concernant l'implantation du terminal méthanier Rabaska et des infrastructures connexes à Lévis

## **Rabaska un projet injustifiable à Lévis**

*Comité Gare au gazoduc, Lévis*

25 janvier 2007

### **Le Comité *Gare au gazoduc***

Le comité *Gare au gazoduc* a été formé en novembre 2006 et regroupe des gens préoccupés par le projet d'implantation du gazoduc industriel Rabaska à Lévis. *Gare au gazoduc* entend veiller prioritairement à ce que la population de notre ville soit assurée de bénéficier d'une protection adéquate en cas d'explosion ou de catastrophe touchant le gazoduc ou le terminal méthanier de Rabaska à Lévis. Le respect devant être accordé à l'environnement ainsi qu'aux personnes qui habitent le long du tracé proposé du gazoduc est aussi très présent dans notre démarche.

## **Rabaska à Lévis**

Nous estimons que la ville de Lévis renferme déjà suffisamment d'installations présentant des risques élevés pour la population de son territoire. Rabaska à Lévis, avec un terminal méthanier et un gazoduc de 42 kilomètres, signifierait dans notre ville l'addition d'équipements posant, en cas d'incendie ou d'explosion, un risque très élevé pour les gens. Notre territoire compte déjà un élément à risque très élevé, la raffinerie Ultramar qui traite 215 000 barils de pétrole brut par jour. La pétrolière Ultramar a soumis récemment au BAPE un projet de pipeline devant relier sa raffinerie de Lévis à ses installations de Montréal.

## **Rabaska, un projet incomplet...**

### ***1 Les terminaux méthaniers Nord Américains sont à court d'approvisionnement en GNL.***

Dans une étude portant sur le marché nord américain du gaz, l'Union Internationale de l'Industrie du Gaz fait état des difficultés que rencontrent les importateurs de gaz naturel liquéfié (GNL) aux Etats-Unis. En 2005, les quatre terminaux méthaniers de la côte est américaine n'ont fonctionné qu'à cinquante pour cent de leur capacité habituelle. On constate également qu'en 2006, la capacité mondiale de production de gaz naturel liquéfié (GNL) était d'environ 20 milliards de m<sup>3</sup> par jour et qu'il y a suffisamment de terminaux de réception dans le monde pour en accueillir le double, selon la Federal Energy Regulatory Commission (FERC).<sup>1</sup>

Les promoteurs de terminaux méthaniers en Amérique du Nord éprouvent actuellement d'énormes problèmes d'approvisionnement en GNL pour leurs projets. La concurrence étant vive, la demande mondiale de GNL excédant l'offre, ils se font déloger par leurs concurrents Européens et Asiatiques. Ces derniers sont capables de s'approvisionner à moindre coût étant plus près géographiquement des pays producteurs de GNL.

Le GNL est donc un marché mondial sur lequel on n'a aucun contrôle au Québec. Le développement de projets se fait de façon anarchique et les difficultés que connaissent les terminaux de réception ne se régleront pas à court terme.

Rabaska a déployé beaucoup d'efforts afin de nous démontrer qu'il dispose d'un marché pour vendre son gaz naturel au Québec et en Ontario. Cependant, Rabaska n'a pas fait la preuve devant la commission qu'il détient des ententes lui permettant de s'approvisionner à long terme et en quantités suffisantes de GNL pour son projet de Lévis.

### ***2 Le projet de terminal méthanier de Bear Head en Nouvelle Écosse est à vendre...un exemple qui devrait nous inciter à la prudence***

Anadarko a mis en vente, l'été dernier, son projet de terminal méthanier de Bear Head en Nouvelle Écosse. Le promoteur américain n'a pas réussi à approvisionner son projet en GNL.

---

<sup>1</sup> Gas to power-North America, International Gas Union, avril 2006, p 34.

Acheté en 2004 d'une compagnie de Calgary qui avait précédemment obtenu toutes les autorisations gouvernementales nécessaires, le projet est désormais à la recherche d'un troisième acquéreur. Des travaux de dégagement et de nivellement ainsi qu'une route d'accès au site ont été réalisés.

"There are now signs that the brakes are being hit hard on the growth of liquefaction capacity. A sharp slowdown of liquefaction growth during this period of intense of regasification could lead to an abrupt slowdown in the development of regasification capacity and there is already evidence this is happening: Anadarko's experience at Bear Head for example"<sup>2</sup>

Au Québec l'émission de certificats d'autorisation par le Ministère du développement Durable de l'Environnement et des Parcs (MDDEP) viendrait établir et baliser le droit qu'aurait Rabaska de construire son projet à Lévis. Un certificat d'autorisation possède une durée de vie indéfinie dans le temps. Par exemple, l'acquisition de Rabaska par des tiers n'aurait aucun effet sur des certificats d'autorisation déjà émis par le MDDEP.<sup>3</sup>

Dès l'émission des certificats d'autorisation par le MDDEP autorisant le projet, Rabaska pourra débiter les travaux de préparation, déboisement ou autre, qu'il jugera approprié de faire sur les terrains qu'il aura acquis pour construire son terminal à Lévis. Le promoteur pourrait aussi, comme ce fut le cas à Bear Head, interrompre ses travaux si des circonstances particulières survenaient, comme le fait de ne plus pouvoir s'approvisionner en GNL. La construction du gazoduc de Rabaska ne pourrait cependant débiter avant l'autorisation de l'Office national de l'énergie.

### ***3 Rabaska à Lévis un mirage de prospérité***

On nous propose de déplacer une population, de modifier l'environnement de façon irrémédiable, ceci pour accueillir un projet qui risque de demeurer incomplet. Le mirage d'une prospérité économique, la promesse de créer des milliers d'emplois au cours de la construction du projet sont encore loin d'être au rendez-vous avec le projet Rabaska.

Les retombées prévues du projet en taxes et redevances diverses pour Lévis, telles qu'inscrites dans la convention intervenue avec Rabaska, sont conditionnelles à la mise en service du terminal méthanier. Tout cela ne se réalisera évidemment pas si Rabaska revend ses terres meurtries à des spéculateurs fonciers.

## **Rabaska et les accidents de gazoduc**

Rabaska fait dans son étude d'impact (Tome 4, vol 3, annexe 6, pp. 3 à 8) la revue des accidents de gazoduc survenus lors des 25 dernières années en Amérique du Nord. La lecture du document nous fait réaliser l'effet dévastateur que pourrait avoir une explosion dans un milieu habité comme le nôtre. La densité de la population dans la région visée par le corridor du tracé, un kilomètre de chaque côté, est de 175 personnes/km<sup>2</sup> (Tome 4, vol 3, annexe H, p. 31).

## **Lévis n'a toujours pas complété son plan de sécurité incendie**

---

<sup>2</sup> LNG Focus, [www.gas-matters.com](http://www.gas-matters.com)

<sup>3</sup> Communication personnelle, M. Pierre Michon, MDDEP

Les activités que compte exercer Rabaska à Lévis présentent une dangerosité élevée.

La ville de Lévis doit assurer la protection incendie de sa population et cette dernière a le droit de savoir comment elle sera protégée. La présence du gazoduc de Rabaska exigerait une capacité d'intervention accrue de la part des pompiers de Lévis. Pour les tronçons plus éloignés des délais d'intervention seront peut-être trop longs, sans compter qu'il n'y a pas d'approvisionnement d'eau dans ces secteurs. Nous n'avons toujours pas, en janvier 2007, de schéma de couverture de risques en sécurité incendie à la Ville de Lévis. Les MRC de Bellechasse, de l'Île d'Orléans, ainsi que la Ville de Québec ont toutes un schéma de couverture de risques en sécurité approuvé par Québec et qui est disponible pour consultation auprès de leur population. Lévis, la capitale québécoise des hydrocarbures n'a pas été capable de rendre un tel outil disponible à sa population.

## **Constats**

1. Les terminaux de GNL existants en Amérique et ceux qui sont déjà autorisés auront peine à s'approvisionner en GNL au cours des prochaines années. En 2006, les terminaux de réception existants sur la planète auraient pu accueillir le double de la production mondiale de GNL. Rabaska ne représente finalement qu'une bouche de plus à nourrir dans un monde affamé.
2. Rabaska n'a pas prouvé qu'il détient des contrats d'approvisionnement en GNL à long terme pour son projet à Lévis.
4. Rabaska risque de devenir un second Bear Head s'il est autorisé par Québec. Le promoteur pourrait débiter des travaux sans nécessairement détenir de contrats d'approvisionnement en GNL.
5. Les milliers d'emplois et les retombées économiques annoncées par le promoteur ne représentent rien si le site est transformé en terrain vague. Les millions de dollars de taxes annoncées en gage à Ville de Lévis se transformeront aussi en vent.
6. La Ville de Lévis a agi prématurément en concluant des ententes avec le promoteur qui engagent la sécurité de ses citoyens alors qu'elle n'a pas complété son plan de sécurité incendie.

## **Conclusion**

Le projet Rabaska n'a aucune justification à Lévis. Beaucoup de terminaux méthaniers sont à la recherche de cargaisons de GNL en Amérique. Le réseau nord américain de gazoducs peut être alimenté en plusieurs endroits, particulièrement depuis le golfe du Mexique où 7 projets ont reçu l'approbation de la Federal Energy Regulatory Commission, dont six en 2005.<sup>4</sup> Notre région peut créer des emplois durables et les travailleurs de la construction ont un avenir plus certain avec le chantier de la rivière Rupert. On ne peut concevoir qu'on autorise un tel projet dans un milieu habité face à l'Île d'Orléans.

---

<sup>4</sup> Gas to Power - North America, *ibid.* p 36.

Environmentalists remain strongly opposed to opening areas such as ANWR and note that 88% of technically recoverable gas reserves on federal land are already available for leasing. The balance of 12% is in national park lands and other protected areas. They argue that legislation isn't needed and point to the fact that the Bureau of Land Management recently proposed an astonishing 70,000 new oil and gas wells for the Powder River Basin in Wyoming and Montana alone.

Richard Watson, senior physical scientist of the Fluid Minerals Group of the US Bureau of Land Management, cited a recent examination of access to federal lands in the Montana Thrust Belt and Powder River, Green River, Piceance, and San Juan basins in the Rocky Mountains.

"On a surface acreage perspective, it appears that only 39% of those federal lands are available for leasing under standard lease terms, 25% available with additional restrictions, and 36% totally unavailable," Watson said. "However, if you look at the oil and the gas resource volumes, 57% of the oil and 62% of the natural gas is available under standard lease terms and only 16% of the oil and 12% of the natural gas is completely unavailable."

The second concern involves the construction of the Alaskan Natural Gas Pipeline which may require major subsidies if it is to come online by 2016. North Slope producers, however, have said it could take up to 10 years to design, permit and build the main gas line, which would stretch more than 2,000 miles to Alberta. There, it could connect with existing lines for distribution across North America. It could take at least a couple of years just for steel mills to roll the proposed diameter pipe of 52 inches -- even larger than the trans-Alaska oil pipeline, with thicker walls to hold the gas pressurized to 2,500 pounds per square inch.

The National Commission on Energy Policy 2004 report noted that support for the pipeline in the form of loan guarantees, accelerated depreciation and tax credits was included in legislation passed by Congress at the end of 2004. But the Commission believes that additional incentives are likely to be necessary given the high costs, lengthy construction period, uncertainty about future gas prices and other siting and financing hurdles associated with the project.

### LNG IMPORTS

#### According to EIA and IEA, LNG imports will rise dramatically

Presently LNG imports account for about 3% of total U.S. supplies. LNG imports have increased from a low of 25 bcf in 1995, to 198 bcf in 2000, and to 445 bcf in 2004. Whether imports will continue to increase depends on whether facilities can be built to store, re-gasify, and send it into the interstate gas transmission system.<sup>19</sup>

---

<sup>19</sup> The *AEO2006* reference case projection for U.S. imports of liquefied natural gas (LNG) is lower than was projected in the *AEO2005* reference case as more rapid growth in worldwide demand for natural gas reduces the availability of LNG supplies to the United States and raises worldwide natural gas prices,

Imports of LNG in the first half of 2005 totaled 314 bcf, or just 6 bcf more than LNG deliveries during the comparable period last year, according to preliminary data from the Office of Fossil Energy, U.S. Department of Energy. Through the first six months of the year, the Dominion-owned Cove Point LNG terminal, located on the Maryland coast of the Chesapeake Bay, received 119 Bcf, which was the largest volume received at any of the terminals. Tractebel's Everett facility, located near Boston, Massachusetts, received 88.2 bcf, the second largest volume of LNG. El Paso's Southern LNG terminal received 55.4 bcf, while Trunkline LNG received 48.7 bcf. Trinidad and Tobago delivered to the United States the most LNG of any source country, providing 242 bcf from the Point Fortin plant. Algeria was the source of approximately 52 bcf, while Egypt supplied 5.7 Bcf. Nigeria, Malaysia, Oman, and Qatar delivered the remaining 14 bcf. High natural gas prices in other world markets during the first three quarters of 2005 have served to attract available supplies of LNG that might otherwise have been directed to the United States, although fourth quarter imports are estimated to increase in response to high U.S. prices. Currently, total LNG imports for 2005 are expected to be approximately 650 bcf; LNG imports are projected to be just over 1,000 bcf in 2006.

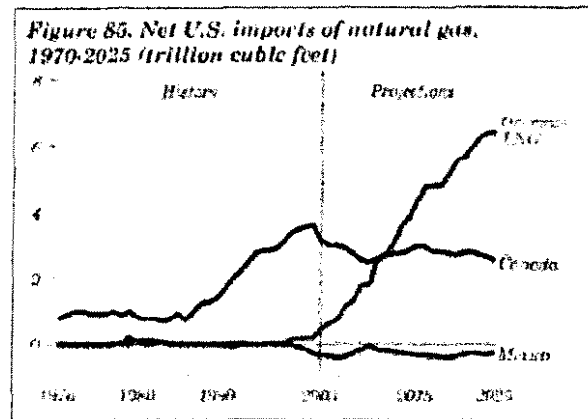
Supplies of natural gas from overseas sources account for most of the projected increase in net imports in all forecasts. In 2001, the industry began the process of reopening mothballed liquefied natural-gas terminals and proposed building dozens of new ones. The Bush administration backed the effort, and the federal government streamlined the regulatory process. Companies campaigned to persuade communities to allow them to build terminals, often in the face of local opposition.

After facing federal reviews, the lengthy process of building new terminals has begun and new LNG terminals are projected to start coming into operation in 2006. In 2005, EIA had projected net LNG imports increase to 6.4 tcf in 2025. The *AEO2006* reference case now projects LNG imports to increase from 0.6 tcf in 2004 to 4.1 trillion cubic feet in 2025 (about two-thirds of the import volumes projected in the *AEO2005* reference case) and to 4.4 tcf in 2030.<sup>20</sup>

---

making LNG less economical in U.S. markets. LNG imports are expected to grow from 0.6 tcf in 2004 to 4.1 tcf in 2025 as compared with 6.4 tcf in the 2005 report.

<sup>20</sup>The growth in LNG imports is moderated by three factors: higher natural gas prices reduce domestic consumption; higher world oil prices increase worldwide demand for natural gas and LNG imports, which raises the price of LNG; and, to a lesser extent, higher world oil prices lead to higher foreign demand for GTL production, which uses more natural gas as a feedstock.



Source: EIA Annual Energy Outlook 2005

Notable events in 2005 include the first receipt of LNG deliveries from Egypt, and the opening of a new U.S. import facility. On June 5, 2005 the Gulf Gateway Energy Bridge, the first new LNG port in the United States in over 20 years, began operations and received one cargo carrying 2.6 Bcf from Malaysia in March. Unlike the other four operating terminals, Gulf Gateway is located offshore (in the Gulf of Mexico), where it receives re-gasified natural gas from carriers specially equipped to vaporize LNG onboard. The terminal is little more than a high-tech submersible buoy and miles of connecting pipeline, but the imaginative twists taken by the operator, Houston's Exceleerate Energy, are providing another way for the United States to satisfy its growing appetite for the fuel.

Exceleerate's design avoids the need for large fixed facilities to turn the super cooled liquid into a gas by putting that equipment aboard the tanker. Exceleerate's system, called the Energy Bridge, centers on a specially designed buoy anchored 100 feet below the surface by eight lines when not in use. The liquid natural gas stored on the tanker is returned to its gaseous state aboard the ship and fed through the buoy into a flexible pipe, which connects to a subsea pipeline that brings the gas to shore. The Excelsior, one of three ships Exceleerate has planned, has storage capacity for 3 billion cubic feet of LNG. It can regasify and offload up to 500 million cubic feet through the buoy per day. On April 25, the second ship, the Excellence, will be launched. The third ship, the Exceleerate, is expected to launch in Oct. 2006.

In late January, Freeport LNG broke ground for the first new onshore terminal in the continental United States in more than 20 years. The terminal, located on Quintana Island, Texas, is expected to be complete in late 2007. Freeport LNG in 2005 also filed with the Federal Energy Regulatory Commission (FERC) to expand the terminal regasification capacity to 4 bcfd, which would make it the largest in the United States. Cheniere Energy started construction of its Sabine Pass terminal in Cameron Parish, Louisiana, in March, after the terminal received final approval from FERC in late 2004. Operations at the Sabine Pass terminal are expected to begin in late 2007 or early 2008. Cameron LNG, which was approved by FERC in December 2003, also began construction in November and expects to begin commercial operations by late 2008. The

terminal's owner, Sempra LNG, signed an agreement to provide Tractebel LNG North America up to one-third of the capacity, or about 500 mmcf/d for 20 years. Additionally, Italy's ENI signed a preliminary agreement with Sempra to take 600 mmcf/d of capacity for 20 years. Federal regulators continued review of numerous LNG terminal applications, approving six terminals in 2005. ExxonMobil received approval from FERC for two terminals: the Golden Pass project near Sabine Pass, Texas, and the Vista del Sol terminal near Corpus Christi, Texas, each with the capacity to deliver up to 1 bcf per day into the pipeline grid. FERC also approved Cheniere Energy's Corpus Christi LNG project in Texas; Hess LNG in Fall River, Massachusetts; and Occidental's Ingleside Energy in Texas. MARAD has approved Shell's Gulf Landing offshore LNG terminal to be located 38 miles off Cameron, Louisiana. The gravity-based structure will have a peak send-out capacity of 1.2 bcf per day.

### Deliveries lag in 2005

The tremendous year-over-year growth in LNG deliveries since 2002 did not continue in 2005. The theory was that if the U.S., the world's largest gas consumer, opened for imports, there would be tankers lining up to discharge their cargo. Instead, a pressing global shortage has developed, in part because of overseas competition. As the price of liquefying natural gas fell, a global building boom began. While supply increased and the number of cargoes available for purchase on the spot market grew, so too did the number of new import terminals in other countries. Global production capacity for natural gas, in liquefied form, is about 20 bcf/d, but there are now enough terminals around the globe to eat up twice that volume, according to the Federal Energy Regulatory Commission.

Deliveries of LNG to the United States during the last half of 2005 had been expected to pick up with a large expansion of export capacity in Nigeria, Trinidad and Tobago, and Egypt. The four existing onshore terminals are importing only about half the volume they can handle. Although natural gas prices remain elevated in the United States relative to historical standards, global competition for uncommitted cargoes and temporary supply constraints in the Atlantic basin has contributed to the slower growth of LNG imports in 2005. A global shortage has developed in recent months, amid supply glitches, cold weather in the United Kingdom and a drought in Spain, which has been turning to liquefied natural gas to make up for a shortfall in hydroelectric power. U.S. buyers are being aggressively outbid by Europeans and Asians for the limited number of cargoes available. Recently, the Spanish have been willing to pay \$2 to \$3 mmbtu above Gulf Coast spot prices, according to PIRA Energy Group, a New York consultant. South Koreans, meanwhile, are paying a premium of about \$2 and the British a premium of \$2 to \$6. Through November, the last month for which official data is available, LNG imports totaled 580 bcf, or an average of 53 bcf per month. If this pace continued in December, total receipts for the year would be less than 3 percent below the 652 bcf received in 2004. The four active onshore terminals operated at an estimated 60% of capacity during the year.

Spot liquefied natural gas prices have surged to record highs near \$10 per MMBtu. Hurricane Katrina has reduced U.S. natural gas output while LNG projects in Nigeria,



Australia and Egypt have lost nearly 1.6 million metric tons of output due to production problems in August and early September. The LNG plant problems mean between 22 and 24 cargos have been lost this summer, putting upward pressure on spot prices.

Geography also puts the U.S. at a disadvantage. Most supplies of liquefied natural gas for Europe and the U.S. come from West Africa, the Mediterranean and the Middle East. Europe is closer, which makes delivery less expensive. The only supplier close to the U.S. is in Trinidad. Ironically, last year, a tanker from Trinidad arrived in the U.K. according to Waterbourne LNG, a weekly publication of Houston energy consulting firm Commercial Services Co. The voyage marked one of the first times liquefied natural gas from the Caribbean had crossed the Atlantic in pursuit of higher prices.

### **Safety and siting are huge concerns for local communities**

The proposals for new receiving terminals have unleashed emotional debates in the communities where they are to be built. Officials in some states where energy companies plan to build terminals that would receive the gas tankers - including Alabama, California, Maine, Massachusetts, New Jersey, New York and Rhode Island - say they could fall victim to a catastrophic explosion, either accidental or set by terrorists. To counter local delays, a provision was slipped into a \$388 billion USG spending bill just before Congress adjourned in November 2004. The provision reasserts that the FERC has "exclusive jurisdiction" over LNG permits and that the 1938 law regulating natural gas transportation "pre-empts" states on approving natural gas infrastructure "associated with interstate and foreign commerce." The Energy Policy Act of 2005 signed by President Bush affirmed the FERC's exclusive authority under the Natural Gas Act to oversee the siting, construction, expansion and operation of new LNG import and export plants. It does not provide FERC with eminent domain authority over siting LNG facilities and states still have the ability to effectively veto an LNG plant by denying permits associated with the Clean Water Act, the Coastal Zone Management Act, and the Clean Air Act.

The commission had already asserted formally that it has final permitting authority over LNG terminals but in a California case it is being challenged. The California Public Utility Commission (CPUC) has argued that state officials should be involved in approval of a site being proposed for Long Beach, California to ensure it addresses state environmental and safety concerns. For two years, Long Beach has debated a proposed \$450 million energy terminal, weighing environmental and safety concerns against the demand for new jobs and much-needed natural gas.

State energy regulators are suing the federal government over the right to decide where some of the terminals are built, if they're built at all. The energy bill language appears designed to bolster FERC's side of the lawsuit, and could profoundly affect California's case, said Harvey Y. Morris, principal counsel for the Public Utilities Commission. The dispute is now before the 9th U.S. Circuit Court of Appeals.

On the safety side, in December 2003, the FERC commissioned ABSG Consulting Inc. to identify appropriate consequence analysis methods for estimating flammable vapor and

thermal radiation hazard distances for potential releases from LNG vessels. At the same time the DOE commissioned the Sandia National Laboratories to conduct a study of the potential for breaching an LNG tanker either accidentally or intentionally. The reports were released in May and December 2004 respectively. The Sandia report said that although the risks from a terrorist attack could be severe, techniques exist to reduce the potential impact.<sup>21</sup>

### **Adequate sites will be approved**

Would-be developers have identified some 50 North American sites, onshore and offshore, as potential spots for new LNG terminals in the U.S and Mexico. Planned expansions at the four existing terminals are underway and new LNG terminals are projected to start coming into operation in 2008, while a considerable number are awaiting approval. Siting and permitting and other regulatory issues are most frequently named as the most significant challenge in expanding LNG imports.

The number of terminals FERC has approved so far would have been a surprise a couple of years ago. The seven terminals that have been approved for the onshore Gulf Coast essentially satisfy US requirements for additional LNG import capacity. Once a few start to get built and it becomes clear that the market can't sustain many more, other LNG terminal proponents likely will be forced to drop out. Two LNG import terminals in Atlantic Canada-Anadarko's Bear Head facility in Nova Scotia and Irving Oil's Canaport facility in New Brunswick-appear well on their way to fruition, which could scuttle plans for siting new terminals anywhere in New England, and particularly in LNG-resistant Maine.

### **An end to open access terminals**

Consumer advocates and environmentalists filed a motion with the Federal Energy Regulatory Commission in May 2005 to oppose a proposal by the Dominion Cove Point facility in Calvert County to become the first operational liquefied natural gas terminal in the country to gain exemption from competitive bidding and public disclosure requirements. Under the original regulatory system, plants were required to allow all gas importers access to their facilities on a non-discriminatory basis. The terminals could charge only the cost of providing service with a specific profit margin added on. The entire bidding process and cost-based rates were tightly regulated. Federal energy regulators agreed. In the Hackberry decision, the commission said a proposed plant in Louisiana could contract directly with energy companies without a public bidding process. It also said the rates do not need to be based on the cost of providing service. Cove Point has asked the commission to apply the Hackberry rule to two new storage tanks it plans to build to boost the plant's overall storage from 7.8 bcf to 14.6 bcf.

---

<sup>21</sup> ABSG Consulting Inc., "Consequences Assessment Methods for Incidents Involving Releases from Liquefied Natural Gas Carriers," (2004); Sandia National Laboratories, "guidance on Risk Analysis and Safety Implications of a Large Liquefied Natural Gas (LNG) Spill Over Water," Rep. No. SAND2004-6258, Dec. 21, 2004.

### The issue won't be lack of terminals but lack of supplies

CERA has done considerable analysis of the emerging LNG markets and makes the observation that developing the full potential of LNG could cost upward of \$200 billion worldwide, and energy companies will have to choose between investments in LNG and other investments. The greatest bottleneck to growing the (US) LNG market may be in new liquefaction facilities, apart from potential siting issues around new receiving terminals. In fact, accessing foreign LNG to import has become more of an intractable problem than getting terminals permitted. For most LNG project sponsors the major issue is supply at this point. The U.S. was a very attractive market for LNG suppliers a few years ago due to high gas prices relative to the rest of the world. But the recent run-up in global oil prices has had a corresponding impact on LNG pricing so that the United States now presents not much of a difference in terms of price.

The pace of constructing new supply facilities is critical to LNG availability for a long-term increase in imports. As described by one analyst, terminals are a comparatively small part of the total LNG chain. They are the "tail" wagging the "Dog", the "Dog" being the liquefaction facilities. Less than 13% of the CAPEX is located in the receiving country while at least 50% is located in the production facilities.

Forecasts of new liquefaction capacity in the medium term vary greatly and the more conservative forecasts site the lack of proven LNG contractors, funding, and technical supply restraints, and the rising cost and availability of critical materials as reasons for the lower estimates.<sup>22</sup>

Potens & Partners, Inc- a shipping consultant, estimated in 2005 engineering and construction contracts were up from \$200/ton of capacity to \$350. High steel and nickel prices (important for cryogenic and stainless grades of steel) and shortage of knowledgeable EPC contractors may be inflating costs 7.5 to 10% a year. Until 2003, two LNG trains a year were being constructed. Now we are looking at as many as 10.

While LNG development may be lagging in the United States, it is proceeding apace elsewhere. Already, Japan, South Korea, and Taiwan account for 68% of global LNG imports. Europe accounts for another 28% of LNG imports, with the United States importing 4%. LNG facilities are being expanded in these countries, and introduced in several others, including China, India, Indonesia, the Philippines, New Zealand, Mexico, Portugal, the Netherlands, and the United Kingdom. Having adequate receipt capacity only gives the U.S. a seat at the table enabling it to compete with Europe and Asia for LNG Supplies.

At present, the Atlantic Basin regasification capacity represents only 25% of total world capacity. But based on projects currently in the planning or construction stage, 74% of

---

<sup>22</sup> At the 8<sup>th</sup> Annual Rice Global Engineering & Construction Forum at Rice University in Houston, Texas, the President of Transmar Consult, Inc., J.P. Cheviere, reviewed the results of a multi-client study of available technical resources and concluded that the more optimistic forecasts for LNG development weren't feasible.

total world regasification capacity growth over the next five years will occur in the Atlantic Basin. This will make the Atlantic and Pacific Basins roughly equal in terms of regasification capacity (O&GJ).

Already rising fuel demand in Asia, Europe and the U.S. are pushing liquefied natural gas prices to record highs. The November 2005 U.K. price may have been a record for spot LNG anywhere in the world.

Additional pressure on US supplies may occur as European countries look for ways to decrease dependence on Russian supplies. EU energy ministers met on Jan. 4 to discuss energy supply security given that Russia is the largest gas producer in the world and has large reserves, it has generally been assumed that much of the EU's additional needs for gas would be met from that supplier. While that is likely to remain the case, the Russian Ukraine gas price conflict may mean that more attention will be given to other options some of which will increase competition for LNG otherwise destined for the U.S.:

- The Middle East and North Africa.
- The Caspian region.
- Nigeria, Angola and Mauritania.

**The interchangeability and quality of LNG supplies is a manageable issue.**

The composition of regasified LNG is of heightened interest as concerns focus on Btu content and dewpoint levels. LNG produced worldwide has a considerable range of heating values and the ability to receive the full range of Btu levels would give the US more supply options. For domestic supplies this has not been an issue. The petrochemical industry extracts ethane and propane from the natural gas stream and sells it separately producing a leaner domestic gas. Many US pipelines now set maximum limits on the btu value or the hydro carbon dewpoint in their transportation tariffs.

In 2004, the FERC instituted proceedings to address gas quality issues and interchangeability. Working with the Natural Gas Council, two reports were produced on February 28, 2005<sup>23</sup> dealing with the technical issues surrounding interchangeability including control parameters, safety and reliability. FERC is now in the process of establishing gas quality and interchangeability standards. LNG developers will have to consider management systems to deal with these issues.

The issue of gas interchangeability for domestic LNG facilities hasn't been resolved although it should prove less of a problem for Gulf-area facilities that have access to a huge pool of gas for mixing with imports, thereby equalizing the heat content. Outside the Gulf, LNG terminal developers will have to look at expensive technologies to bring down the heat content.

---

<sup>23</sup> "White Paper on Liquid Hydrocarbon Drop Out in Natural Gas Infrastructure" and "White Paper on Natural Gas Interchangeability and Non-Combustion End Use."

### Will LNG be controlled by a cartel?

U.S. policy makers also express concern about increasing the US dependence on foreign imports. Increasing the United States' reliance on non-North-American natural gas raises a host of geopolitical questions. With the country already dependent on overseas oil, is it wise to head the same route with gas? The concept of a natural gas OPEC is becoming less far-fetched. On April 25-27, 2005, a little-known, four-year-old organization called the Gas Exporting Countries Forum met in Port of Spain, Trinidad and Tobago. The Trinidadian hosts listed the countries invited as forum members as Algeria, Bolivia, Brunei, Egypt, Indonesia, Iran, Libya, Malaysia, Nigeria, Oman, Qatar, Russia, Trinidad, United Arab Emirates, and Venezuela. Many are OPEC members. Norway, Argentina, and Equatorial Guinea were invited to observe.

Recent events between Russia and the Ukraine have also served to illustrate the risk other markets, particularly those in Europe, can face in terms of security of gas supply. A major disruption to European supplies can and will have spill-over effects that will be felt not only on that continent but in the U.S. While this episode is behind us, worldwide gas supplies are increasingly being sourced from what most consider to be less stable, or perhaps more politically activist, regions.

Gas is arguably more vulnerable to unforeseen interruptions of supply. Oil is reasonably easy to trade, but in most gas markets the pipeline between the gas field and the gas burner locks producers and consumers in an exclusive embrace. But a market in tradable LNG is rapidly emerging. Billions of dollars will be invested in LNG over the next decade and there might even be routine price arbitrage between markets.

### Turning to Mexico for new sites

The Long Beach project is the lone remaining onshore gas terminal in California being considered after public opposition killed other projects. Three offshore projects — one off Camp Pendleton and in Ventura County — are still alive. With controversy raging in California over the proposed sites, developers have turned to Mexico.

In Mexico, the Repsol YPF plant would be built in the Pacific port city of Lazaro Cardenas in the state of Michoacan and would supply gas via pipeline to Mexico City, the energy-hungry capital almost 200 miles away. Other re-gasification terminals are under construction just north of Ensenada in Baja California — the first ever on North America's Pacific Coast — and in Altamira in Tamaulipas state on the Gulf of Mexico.

Three additional proposed terminals, including a second plant at Ensenada and others at Pacific ports Manzanillo and Rosarito, are in various stages of the approval process.

The first Ensenada plant is being developed by Sempra Energy of San Diego, parent of Southern California Gas Co. and San Diego Gas & Electric Co. The company plans to sell more than half the gas in the United States. Construction on the Ensenada plant began

## Congestion

A lack of room for ship movements at the Fos terminal in France has meant that a new terminal, Fos Cavou, is now being built. Equally, factors well downstream of the terminal can also be limiting. For example in Spain the new terminal at Sagunto and the neighbouring one at Barcelona have been unable to operate at full capacity owing to congestion on the regional transmission system they serve. Further downstream there may simply not be the market available or accessible to utilise the potential capacity, for example at Guangdong or Hazira. Finally, terminal expansion may be possible but face local opposition and permitting difficulties.

Looking globally, the existing and committed regasification capacity of approximately 400 mtpa appears well in excess of the production capacity implying an average load factor of about 65%. For the reasons discussed above, this is perhaps not surprising. But the growth of regasification capacity is being driven by new dynamics which are altering the structure of the industry and raising the risks for investors in regasification. With the growth of LNG supply, interest in regas continues to surge and at present there are identified projects being considered that could add capacity of over 500 mtpa.

Many countries find themselves dependent on dwindling indigenous gas resources or on one (potentially unreliable) supplier and aim to diversify supplies to obtain energy security. Hence Chile, Singapore, Pakistan and Poland, among others, are investigating importing LNG. Existing importers like China and India intend to grow their imports as demands rise and plan new terminals for the purpose.

While these factors are also at play in North America (US, Canada and Mexico) and Europe, the scale of the potential growth in these regions reflects other major influences. Both regions have been hot spots for terminal development in recent years and potential European capacity additions could double the total to around 200 mtpa, while North America has proposals for adding over 370 mtpa, over three times the existing and committed level.

Not only are North America and Europe major, growing, gas consuming regions but both either are – or are becoming – liberalised, liquid and competitive gas markets. They have a need for additional gas imports and the way is open for new players to enter the business of gas supply and wholesale marketing and trading. Three main types of player have entered.

First are the major oil and gas companies that generally have upstream gas production and liquefaction interests. They are extending down the chain, building mid-stream positions with LNG shipping, purchase and sales, and wholesale gas marketing in major markets. Seeking secure outlets for LNG they have promoted a raft of regasification projects – their own or have acquired capacity rights from project developers.

While keeping some semblance of balance between off-take capacity and supply, companies have tended to take positions ahead of supply coming onstream and in excess of that supply. BG for example holds all the capacity at La Charles plus Elba Island, part of Dragon, potentially Brindisi and has taken the responsibility to supply the new Quint terminal in Chile. Statoil has committed to Cove Point expansion, BP is advancing Crown Landing in addition to its Cove Point and Isle of Grain positions. Shell has Cove Point, Elba Island expansion, Altamira, Hazira, Baja California and is pursuing Gulf Landing and Broadwater in US and its Sicily project. These companies seek to hold enough capacity to meet future LNG purchase requirements but it is difficult to maintain a balance between supply and regasification capacity. Investment in the latter is speculative to a greater or lesser extent depending on the company. Also some companies, including for example BG Group, are holding sufficient redundant regasification capacity to allow the flexibility for arbitrage.

A further, linked, factor has been the approach of companies to have capacity in key markets to improve their chance of securing positions in new upstream and liquefaction ventures. This was probably important for Shell and ConocoPhillips entering Qatar and was similarly viewed in the beauty parade for Shtokman, though the outlook for surplus capacity in the US particularly has led Gazprom to downgrade the perceived value of such an asset.

A second group are wholesale marketers, and at least one major consumer (Dow at Freeport), keen to secure access to LNG supplies. Their numbers have been less than those of the upstream companies, although in Europe there is greater momentum growing for this activity with, for example, Essent, Centrica, RWE and E.ON all now having secure or pursuing terminal capacity. In North America Sempra has established a leading position in terminals in Baja California, Louisiana and Texas.

Cheniere, 4Gas and Petronet have declared their intentions to grow positions by establishing multiple terminals. Cheniere in the US, Petronet in India and 4Gas initially in Europe but now heading overseas to North America and Africa (see the interview with the 4Gas CEO on page 6). 4Gas and Cheniere have sold capacity to third parties while Cheniere has retained some for its own use as it builds an LNG trading business. Petronet has added LNG purchase to its terminal activities as it expands Dahej and pursues Kochi.

Undoubtedly not all proposed projects will be built. The costs of development and construction will limit the extent to which established players are prepared to invest speculatively and the margin of spare capacity they will hold. Excess capacity will be sold down as Shell did at both Altamira and Hazira, to Total in both cases. In addition projects that are in competition may coalesce into one as happened with Semptra and Shell in Baja California. Many projects will fail to receive permits (e.g. Providence, Rhode Island) and others will be abandoned because of lack of supply (as appears to be the case with Anadarko's Bear Head project) or in favour of a superior alternative (e.g. Chevron dropping Pellicar Crossing while taking capacity at Cheniere's Sabine Pass project). Keeping overall regasification capacity in reasonable balance with supply will, however, be a big challenge especially as changes in the outlook for supply can change rapidly.

There are now signs that the brakes are being hit hard on the growth of liquefaction capacity. The rising costs of liquefaction (as discussed in the last edition of LNG Focus) and technical challenges of new developments are causing delays in development. Gas supply problems have emerged, most notably in Indonesia where national LNG production is declining (see the article on page 17 of this issue). Qatar, which has been the most important location for growth in liquefaction, has declared a moratorium on further expansions. At the same time there are major uncertainties surrounding the exploitation of the large gas resources of Iran, Russia (where Gazprom blows hot and cold on Shtokman) and Venezuela, sources from where there is much LNG production potential.

A sharp slowdown of liquefaction growth during this period of intense activity of regasification could lead to an abrupt slowdown in the development of regasification capacity and there is already evidence this is happening: Anadarko's experience at Bear Head for example.

There is, however, a strong likelihood that there will be significant amounts of regasification capacity which will be installed but for which there is no firm supply, much of it in the US (especially the Gulf of Mexico and Europe).

Low utilisation of regasification capacity is not a new phenomenon; witness the example of Japan above. What is new, however, is the potential availability of significant capacity in the liberalised, competitive markets of North America, the UK and (increasingly) the rest of Europe. Here the market conditions will provide incentives for holders of capacity for which long-term supplies have not been secured to offer that capacity on short and flexible terms, for example to exploit seasonal peaks of demand or to gain some return on their investment.

They will either offer to buy LNG, or make capacity available on a secondary market on a competitive basis, probably at a discount to the full cost of the service. Depending on the amount of unused capacity a traded market in regasification capacity could emerge similar to the market for pipeline capacity in the US. This in turn will reduce the costs of holding regasification capacity making it easier for companies to participate in arbitrage. The liquidity of the regasification market will be added to that already existing in the LNG shipping market, fuelling growth in the trading of LNG.

Such trading is however, likely to be limited in scale as long as the tightness of LNG supply is maintained. With competition between holders of regasification capacity to acquire supplies, LNG producers will be able to identify the best opportunities – driving harder bargains to pull more of the rent from regasification back upstream.

Until the balance between liquefaction and regasification is restored, and there is a strong argument that this is a long way off, there will be some facilities that are substantially under-utilised or not used at all while others, with secured supplies and in attractive, higher priced markets, will enjoy higher use.

[« Back to LNG Focus Home](#)