

**Long Island Regional Planning Board  
Draft Action Memo  
July 2006**

**Prepared by Seth Forman, Ph.D., AICP  
Acting Executive Director**

*Please Note That This is a Staff Report and Has Not Been Adopted in any Form by the  
Long Island Regional Planning Board*

**Broadwater Proposed Liquid Natural Gas Terminal**

**The Situation Today**

The Broadwater Energy Company of Houston, in conjunction with TransCanada Corporation and Shell, plans to construct a Floating Storage and Regasification Unit (FSRU) approximately in the middle of the Long Island Sound at its widest point. The terminal would be 1,200 feet long and would accept shipments of super cold liquefied natural gas (LNG). The proposal is pending before the Federal Energy Regulatory Commission, which must issue a Draft Environmental Impact Statement and a permit in order for the facility to begin operation.

Broadwater filed the application for the \$700 million LNG terminal with the Federal Energy Regulatory Commission (FERC) on Jan. 30, 2006. The proposed FSRU would be constructed at a shipyard, towed to a site in the Sound roughly 9 miles from Wading River and 11 miles from New Haven, and attached to a Yoke Mooring System, which is supported by a tower structure. The tower structure base on the seabed is expected to cover an area of about 13,000-square feet, slightly larger than the size of two basketball courts. The FSRU's deck would rise between 75 and 100 feet above the water line.

The FSRU, will receive LNG shipments from ocean-going carriers that will enter and offload their cargo. Once offloaded into the FSRU, the LNG will be converted back into a gas (regasified) before it is sent to the New York and Connecticut markets via the existing Iroquois pipeline, which crosses Long Island Sound from Milford, Connecticut to Northport, New York. (In a concurrent filing, the developer requested permission to build a 30-inch-diameter, 22-mile undersea lateral pipeline to transport natural gas from the storage and regasification unit to an interconnection with the interstate pipeline network.). If approved, Broadwater estimates the terminal will be operating by 2010.

The application to FERC marks a significant step in the public and regulatory review process, which began on a less formal basis in November 2004. For the past year, Broadwater has submitted design and engineering information to FERC in the form of "resource reports" for initial review and feedback to head off potential regulatory roadblocks.

Besides FERC, a range of federal and New York state agencies will have the opportunity to review the project, but federal law grants the commission final authority to approve or kill the project based on whether it meets public necessity, environmental and safety standards.

There are five existing FSRU terminals in the United States, four on land and one 100 miles off the coast of Louisiana. There are dozens more around the world. Off shore LNG terminals have been proposed for California, Louisiana and Long Island. Another was proposed recently for a man-made island that would be built 13-1/2 miles south of Long Beach by private investors forming the Atlantic Sea Island Group. There are more than 100 other sites in the United States where the clear, odorless liquid is held in storage tanks, including three local ones: KeySpan facilities in Holtsville and Greenpoint, and a Consolidated Edison tank in Astoria. All three have operated without incident since the 1970s.

The proposed Broadwater terminal would be more than twice as large as any existing LNG terminal in the United States. It is expected to have an import capacity of 1 billion cubic feet of LNG per day. It would also be much larger than any of the LNG holding facilities on Long Island, the largest of which, in Greenpoint, has a capacity of about 20 million gallons.

Broadwater estimates that about 75 percent of the gas will go to New York, with the rest going to Connecticut. About three-fourths of New York's share will go to New York City. But because natural gas is priced uniformly in the downstate region, Long Island consumers will benefit just as much as city residents from the influx of this fuel.

### **Liquid Natural Gas Primer**

Natural gas is a gaseous fossil fuel consisting primarily of methane. It is found in oil fields and natural gas fields, and in coal beds.

Natural gas is a major source for electricity generation through the use of gas turbines and steam turbines. Particularly high efficiencies can be achieved through combining gas turbines with a steam turbine in combined cycle mode. Natural gas burns cleaner than other fossil fuels, such as oil and coal, and produces less greenhouse gas per unit of energy released. For an equivalent amount of heat, burning natural gas produces about 30 percent less carbon dioxide than burning petroleum and about 45 percent less than burning coal. Combined cycle power generation using natural gas is thus the cleanest source of power available using fossil fuels, and this technology is widely used wherever gas can be obtained at a reasonable cost. The natural gas supply is projected to peak around the year 2030, twenty years after the peak of oil. It is also projected that the world's supply of natural gas should be exhausted around the year 2085.

The "natural gas crisis" is a reference to the increasing price of natural gas in the United States over the last few years. The price increase is due primarily to the decline in indigenous supply and the increase in demand for electricity generation. Indigenous supply has not truly fallen, but its growth has leveled off. Because of the continuing growth in demand - about 70 percent of all new single-family homes are heated with gas, even though it is no longer consistently cheaper than oil - and the temporary but dramatic hit to production that came from Hurricanes Katrina and Rita, the price has become so high that many industrial users, mainly in the petrochemical industry, have closed their plants.

Since environmental concerns and other restrictions have reduced domestic output of natural gas, the gas industry believes that LNG imports will have to fill in the gap. This is where liquefaction comes in. Chilling gas to liquid form reduces its volume, making shipment economically feasible from the Middle East and other regions in the world where gas is abundant and relatively cheap. Alan Greenspan, former Federal Reserve Board Chairman, has suggested that one possible solution to the natural gas crisis is the import of LNG.

This solution is both capital intensive and politically charged due to environmental concerns and the public perception that LNG terminals are explosive risks, especially in the wake of the 9/11 terrorist attacks in the United States. The U.S. Department of Homeland Security is responsible for maintaining the security of LNG terminals.

### **Long Island's Power System**

Currently, 21 out of LIPA's 42 power generation sources run either partially or entirely on gas. Out of approximately 3,800 megawatts of power KeySpan delivers from power generators it operates on Long Island, roughly 1,400 megawatts comes from gas turbines. LIPA's *2004-2014 Energy Plan* states that any KeySpan plants that are bought in the future by LIPA will be powered with natural gas.

For a thorough overview of Long Island's power system please see LIRPB Action Memorandum "Long Island Off Shore Wind Park South Shore Wind Park," July, 2006.

### **Opponents and Proponents**

The vast majority of public officials and civic groups have come out strongly against the Broadwater LNG project. Already Suffolk County, seven North Shore towns, and two villages oppose the project, as do Reps. Tim Bishop (D- Southampton), Steve Israel (D-Huntington) and Gary Ackerman (D- Jamaica Estates). Sens. Hillary Rodham Clinton and Charles Schumer also oppose it.

On June 13, 2006, citing an 1881 state law, Suffolk County Executive Steve Levy filed local legislation aimed at barring a liquefied natural gas facility in the Long Island Sound. On August 2nd of 2006 the bill passed the Suffolk County Legislature.

Most of the opposition to the Broadwater project is based on safety, environmental, and aesthetic issues, although a commission appointed by Connecticut Governor M. Jodi Rell found that the proposal fails to factor in costs to the public and has no identifiable market. The report by Synapse Energy Economics Inc., based in Cambridge, Mass., says, "Having carefully reviewed the project documentation put forth by Broadwater, we find that they have failed to identify any compelling local or regional need for the proposed project that would justify the impact that this project would have on the environmental, economic, recreational and historical value of Long Island Sound." The Synapse report was sponsored by a group, Save the Sound, opposing the project.

Broadwater counts 37 groups, including the New York City Council and Stony Brook University, in favor of the FERC process going forward and insists the delivery system

will "be designed and constructed to meet or exceed the safety standards" set by the United States Department of Transportation.

Broadwater argues that demand for natural gas will continue to grow, citing a forecast by the New York State Energy Research and Development Authority that shows natural gas demand will grow nearly 37 percent by 2021. KeySpan Corp., the major local supplier of gas for electrical generation, heating and cooking, said it expects demand for natural gas to grow by 4-1/2 percent a year during the next five or 10 years. The American Gas Association expects total U.S. demand for gas to rise 40 percent, to 30 trillion cubic feet a year, by 2020. Local utilities and business groups are taking a wait-and-see attitude toward the Broadwater LNG facility. KeySpan has said it might one day be a customer for Broadwater's gas, but the utility has not endorsed or opposed the project.

### **Staff Recommendation for LIRPB Board Action**

**Justification:** Energy supply and management effects both Nassau and Suffolk counties and comes under the purview of the LIRPB's functions as outlined in Resolution #1 2005 of the Nassau-Suffolk Regional Planning Board (14<sup>th</sup> Resolved Clause, section g "Energy Planning") and the LIRPB's founding legislation of 1965 (Ordinance No. 6 of 1965 Nassau County Board of Supervisors Section 3, part (b) "analysis of economic base land use, fiscal problems and public utilities" and Resolution No. 36 of 1965 Suffolk County Board of Directors Section 3, part (b) "Perform planning work, including but not limited to studies of . . . public utilities."

The Long Island Power Authority serves the Nassau-Suffolk region almost exclusively. Thus energy needs on Long Island are managed and planned for regionally.

### **Staff Findings:**

Many things remain unclear about the Broadwater proposal, including the safety of such a facility, the environmental impact, and the economic benefit, if any, to Long Island. The United States Coast Guard is currently preparing a report on safety and FERC is the lead agency responsible for preparing an Environmental Impact Review under the National Environmental Protection Act of 1969.

The LIRPB's *Energy Plan for Long Island, New York* of 1991 calls for energy conservation, an increased supply of natural gas, and increased hydroelectricity from the North to address Long Island energy problems. The report points out that natural gas is the cleanest burning fossil fuel and notes approvingly that any proposed conversion of energy facilities on Long Island will use natural gas. The plan also questions whether the natural gas supply will be enough to satisfy growing demand. "The interstate natural gas pipeline infrastructure serving New York State is inadequate," the plan states (p. 7). Along with the expansion of existing and proposed pipelines, the plan suggests that Long Island can be the location of an LNG import terminal. "Long Island could make use of its coastal location, as it now does to import oil, to establish an LNG import terminal. Considering Long Island's history of siting energy facilities, of course, it would take a courageous entrepreneur to make that endeavor" (p. 8). However, the plan also urges caution, recommending that the New York State Energy Research and Development

Authority study the feasibility of such an enterprise, and that the New York State Department of Environmental Conservation be “urged to publish its standards for siting new LNG facilities implementing legislation that was passed in 1976” (p. 8).

### **Staff Recommendation**

With the federal government the lead agency on this project there are few options available to state and local authorities.

There is some disagreement over regulatory authority for LNG facilities in the Long Island Sound. The Energy Policy Act of 2005 pre-empted state authority in the siting and construction of LNG facilities (section 311). But several New York State lawmakers and the Suffolk County Legislature refute that, arguing that an 1881 state law reinforces the jurisdiction of Suffolk to protect tidal waters.

It is possible that this question over regulatory authority will end up being settled in court. In the meantime, New York State should put itself and Nassau and Suffolk counties in a position to rule intelligently on the efficacy of the Broadwater FSRU facility. At the very least this would require the New York State Energy Research and Development Authority to prepare a feasibility study on the Broadwater proposal, including an economic, safety, and environmental analysis as it pertains to Nassau and Suffolk counties. The other members of the former New York State Energy Planning Board (which after the lapse of Article 6 of the New York State Energy Law and Energy Planning Board Regulations became the Energy Coordinating Working Group), including the New York State Department of Environmental Conservation, the New York State Department of State, the New York State Department of Transportation, the New York State Public Service Commission, the New York State Department of Economic Development, should conduct relevant permitting reviews regarding siting of LNG facilities.

### **New York State Proceedings for LNG Facility**

<b><u>Agency</u></b>	<b><u>Permit/Approval</u></b>	<b><u>Description</u></b>
Dept. of Env. Con. (DEC)	Permits required under National Pollution Discharge Elimination System Program	Permits for storm water, wastewater, and hydrostatic test water associated with project
DEC	Title V Air Quality Permit	Ensure that project meets air pollution Regulations
DEC	New Source Review	Ensure that project meets air emission standards for new sources of pollution

DEC	Clean Water Act Review	Ensure that (1) water temperature and vol. changes caused by the project do not disrupt ecosystem and (2) water intake meet needs of threatened resources
DEC	Noise Review	Ensure that project construction and operations comply with state noise regs.
DEC	Water Quality (section 401) Certification	Ensure that project does not degrade quality of water resources
Dept. of State	Coastal Zone Consistency Determination	Demonstrate that the project complies with state coastal policies
State Office of Parks, Recreation and Historic Preservation	National Historic Preservation Act review	Ensure that project does not harm cult or hist sites

Source: Broadwater Energy; State of Connecticut Office of Legislative Research Report, February 8, 2005.

### **Federal Proceedings for LNG Facility**

<b><u>Agency</u></b>	<b><u>Permit/Approval</u></b>	<b><u>Description</u></b>
Federal Energy Regulatory Commission	Approval under Section 3 of the Natural Gas Act	Needed to build and operate project
U.S. Coast Guard	Terminal Operations Permit	Needed to operate floating storage and regasification unit
Army Corps. of Engineers	Wetlands and Dredging Permit	Ensures proper management of impacts to wetlands and dredged materials
Coast Guard and Army Corps. of Engineers	Permit under Rivers and Harbors Act	Ensures that facility operations do not

		interfere with other uses of the Sound
Nat'l Oceanic and Atmospheric Administration (NOAA)	Review of essential fish habitats	Ensures consistency with existing plan
NOAA and Fish and Wildlife Service (FWS)	Review Under Marine Mammal Protection Act	Ensure that the project will not harm marine mammals
NOAA and FWS	Review Under Endangered Species Act	Ensure that project will not harm Threatened or endangered species

Source: Broadwater Energy; OLR Research Report, February 8, 2005

### Sources

Bleyer, Bill. "Decision on Energy Deal to Wait," *Newsday* March 17, 2005, A18.  
 "Juice to Flow From the South," *Newsday* July 22, 2005, A16.

Bonilla, Denise M. "LI's Modern-Day Power Surge," *Newsday*, March 23, 2005, A14.

Brand, Rick. "Troubled waters, Citing an old state law, Levy seeks to ban liquefied gas facilities such as one proposed by Broadwater Energy," *Newsday*, June 14, 2006, A.03.

Broadwaterenergy.com.

<http://www.broadwaterenergy.com/index.php?module=htmlpages&func=display&pid=34>  
<http://www.broadwaterenergy.com/Downloads/ProjectUpdate.pdf>

"Broadwater Defends Its Project Again, Stressing the Uncertain Outlook for Eastern Canadian Projects, *Foster Natural Gas Report*, April 14, 2006, Report No. 2587, p. 8.

"Broadwater deserves inquiry, Its too soon to just say no," *Newsday*, June 15, 2006, A.44.

"Broadwater files application for Long Island Sound LNG project; critics vow robust response," *Inside F.E.R.C.*, February 6, 2006, 16.

Fagin, Dan. "New War on the Sound" *Newsday* February 13, 2005, A2.

"Arguments For and Against Floating Terminal," *Newsday* February 13, 2005, A2

"Long Island Energy Answer," *Newsday*, April 3, 2005, A14.

"Sitting Duck But 9 Miles Out in Sound," *Newsday* April 3, 2005, A15.

German, Erik. "Not Too Hot to Handle," *Newsday*, August 17, 2005, A2.

“Guidance on Risk Analysis and Safety Implications of a Large Liquefied Natural Gas (LNG) Spill Over Water,” Sandia National Laboratories, Albuquerque, New Mexico, December 2004.

[http://www.broadwaterenergy.com/Downloads/Reports/sandia\\_lng\\_1204.pdf](http://www.broadwaterenergy.com/Downloads/Reports/sandia_lng_1204.pdf)

Incantalupo, Tom. “Report: No local need for gas hub, Consultants respond to Houston company's proposal for Sound terminal; gov't, trade groups predict future rise in natural gas consumption,” *Newsday*, March 3, 2006, A.52

“Seeking information, Suffolk complains company planning to build LNG terminal in Sound hasn't been forthcoming enough,” *Newsday*, Feb. 10, 2006, A.17.

“Collision potential a concern, Coast Guard wants Broadwater to review the risk of a ship hitting offshore gas terminal; Levy proposes legal ban,” *Newsday*, June 16, 2006, A.48.

LIPA. *LIPA Energy Plan 2004-2013*, (Long Island Power Authority, Hicksville, New York 2004).

“LIPA Sets New Peak Summer-Demand Record 5614 Megawatts of Electricity Delivered,” (Long Island Power Authority, Hicksville, New York, August 1, 2006)

Long Island Regional Planning Board. *Energy Plan for Long Island, New York*, (Hauppauge, New York 1991)

Madore, James T. “Upsets, Surprises in Legislature,” *Newsday*, August 3, 2006, A20.

McGinty, Tom. “Big Demand, Huge Concern,” *Newsday*, August 4, 2006, A5.

New York State Office of the State Comptroller, “Long Island Power Authority Summer 2006 LIPA Bills,” June 2006.

“Proposed Broadwater LNG Import Terminal: An Analysis and Assessment of Alternatives,” Synapse Energy, Cambridge, Massachusetts, March 2, 2006.

“State Energy Plan – 2005: Annual Report and Activities Update,” Memorandum, New York State Energy Coordinating Working Group, March 2006.

[http://www.nyserda.org/Energy\\_Information/sep\\_annual\\_report.pdf](http://www.nyserda.org/Energy_Information/sep_annual_report.pdf)

“Study says gas terminal cost an issue,” *Newsday*, March 9, 2006, A.18.

Wikipedia. Entry on natural gas.

[http://en.wikipedia.org/wiki/Natural\\_gas#Power\\_generation](http://en.wikipedia.org/wiki/Natural_gas#Power_generation)