



STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION

79 ELM STREET HARTFORD, CT 06106-5127

PHONE: 860-424-3001



Gina McCarthy
Commissioner

UNITED STATES OF AMERICA

FEDERAL ENERGY REGULATORY COMMISSION

Broadwater Energy LLC

Docket No. CP06-54-000

Broadwater Pipeline LLC

Docket No. CP06-55-000

Docket No. CP06-56-000

ADVISORY REPORT - SAFETY CONSIDERATIONS

In a February 28, 2006 letter to the Commission, Governor Rell designated the Department of Environmental Protection as the State agency contact under Title III, Section 311 of the Energy Policy Act of 2005 (codified at 15 USC §717b-1). Also, the Governor requested a 30 day extension to March 17, 2006 to file an advisory report on State and local safety considerations regarding the Broadwater Project.

The Governor's Long Island Sound LNG Task Force issued an Interim Report on March 8, 2006, which is enclosed. Please accept this enclosure as Connecticut's advisory report.

Thank you for your cooperation, and if I can provide any further assistance regarding this matter, please contact me at the letterhead telephone number.

Yours truly,

Gina McCarthy
Commissioner

Dated: 3/14/06

Enclosure

cc: Governor M. Jodi Rell
Senator Leonard A. Fasano
Senator Andrea L. Stillman

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INTERIM REPORT

OF THE

LONG ISLAND SOUND

LNG TASK FORCE

MARCH 8, 2008

TASK FORCE MEMBERS

Senator Leonard Fasano, Chair
Senator Andrea Stillman, Vice-Chair
Ms. Julie Belaga
Public Safety Commissioner Leonard Boyle
Ms. Sue Eckert
Public Health Commissioner Robert Galvin, MD
Transportation Commissioner Stephen Korta, II
DEP Commissioner Gina McCarthy
Agriculture Commissioner F. Philip Prelli
Emergency Management & Homeland Security Commissioner James Thomas
Mr. Grant Westerson

TASK FORCE REPORT

ESTABLISHMENT OF TASK FORCE

On August 5, 2005, Governor Rell issued Executive Order 9 in response to the proposal by Broadwater Energy LLC to construct and operate a floating storage and regasification unit (FSRU) for liquefied natural gas (LNG) in Long Island Sound.

The Executive Order established a task force to monitor the proposal and to:

- (a) analyze the environmental, public health, safety, industrialization, economic and homeland security implications of the proposal on the state and collaborate with the appropriate state agencies; and
- (b) manage the submission of testimony to each regulatory proceeding or body on the proposal conducted by any federal agency or the State of New York. Such testimony shall include recommendations for the safety zones surrounding such unit and for an emergency response plan; and
- c) discuss alternatives to get more liquefied natural gas to the region.

The Executive Order specified the task force's membership, which includes (a) three members appointed by the governor; (b) four members appointed by legislative leaders; and (c) the commissioners of Environmental Protection, Public Health, Transportation, Agriculture, Public Safety and Homeland Security and Emergency Management, or their designees. The governor's appointees are (a) a resident of a municipality located on Long Island Sound, (b) a member of a nonprofit organization whose primary purpose is protection of the Long Island Sound estuary; and (c) a representative of an environmental nonprofit organization concerned with the preservation, restoration and conservation of environmental resources. The president Pro Tempore of the Senate must appoint a commissioner of the Department of Public Utility Control and the House speaker must appoint a person experienced in the field of natural gas supply and demand and the siting of liquefied natural gas facilities. The minority leaders of the Senate and House must appoint a state resident who has expressed an interest in public service and a resident of a municipality located on Long Island Sound, respectively. Under the order, the governor appoints the chair of the task force from among its members.

In order to abide by Governor Rell's Executive Order the Task Force examined a number of factors and researched a number of issues including a full understanding of the LNG process, the federal regulatory process for siting of the LNG facilities as well as the different impacts the project may have upon Connecticut, its economy and its residents. The various issues examined by the Task Force were very complex and had multiple levels of analysis. The Task Force had to deal with environmental, safety, energy and terrorism issues, as well as jurisdictional, national policy, interstate and intrastate issues. Each of the above issues by itself justifies a separate analysis by a named Task Force

In accordance with the Federal Energy Regulatory Commission (FERC) process an applicant for an LNG facility must first file a pre-application report before filing the siting application. This preliminary Task Force report is based upon the pre-filing application by Broadwater dated June of 2005.¹ At the time of drafting this report Broadwater filed its official application requesting the siting approval for the FSRU. However, this preliminary Task Force report will only focus on the preliminary filing by Broadwater. At some point after a number of agencies review the official application, the Task Force will have an opportunity to review the siting application in detail and will then file its final report in accordance with Governor Rell's Executive Order.

The Task Force report has multiple levels of analysis of the Broadwater project. This preliminary report is a first effort to identify important issues connected with an operating FSRU in the Long Island Sound. It will also identify those issues which the Task Force may want to analyze further when reviewing Broadwater's final siting application.

To understand the magnitude of this project as well as the various effects this project may have on different interests, one needs to understand the energy issues across the country and how they relate to the energy needs here in Connecticut. Overall energy issues are the catalyst of the developing LNG market and the Broadwater concept. In addition one must understand the LNG market, the shipping process, the delivery process and the overall gas and electric industries in order to understand and evaluate this project at the various levels.

The complexity of the topic and of the impact of this project does not escape this Task Force. The Task Force understands that with limited time, limited information in the preliminary application and limited resources available to the Task Force certain areas of this report may contain gaps. The goal of this report by the Task Force is to raise as many potential issues to the various agencies, ensuring that Connecticut and its residences are fully protected, as per the Governor's Executive Order.

BROADWATER LNG PROJECT:

Broadwater is a joint venture between TCPL USA LNG, Inc. and Shell US Gas & Power LLC to construct and operate a marine LNG terminal and sub sea pipeline for the importation, storage, regasification and transportation of natural gas primarily into the State of New York. The Broadwater LNG Project (the Project) terminal will be located in the Long Island Sound (LIS) approximately 9 miles off the shore of Long Island in New York waters and approximately 12 miles off of the Connecticut shoreline.

The Broadwater LNG terminal will be a Floating Storage Regasification Unit (FSRU). The Broadwater FSRU is proposed to be approximately 1,215 feet long, 200 feet wide and over 100 feet high. The FSRU draft will be approximately 40 feet. The

¹ The Broadwater preliminary application actually came in various submissions starting on May 2005 and continuing for several months thereafter.

FSRU will hold about 8 billion cubic feet (bcf) of LNG with vaporization capabilities of 1bcf per day and up to 1.25 bcf at peak times. The FSRU is proposed to have a storage holding capacity of approximately 350,000 cubic meters (for reference; a cubic meter is about 100 cubic feet). The FSRU will be supplied by LNG carriers with storage capacity ranging from 125,000 cubic meters to 250,000 cubic meters. These supply tankers would arrive at a rate of two to three carriers per week.

The FSRU will have regasification capabilities on board. As the LNG is heated it will then be pressurized and nitrogen will be added to it in order to make it's energy content compatible with the gas already in the pipeline system. The LNG will then be pressured into the connection pipeline to the Iroquois Gas Transmission System (IGTS)

The FSRU will be anchored to the LIS by a tethering system described as a yoke mooring system (YMS) that allows the FSRU to weathervane around the mooring tower base. The YMS will be secured to the LIS floor by a tower structure, with a span of it's base to be approximately 13,180 square feet and anchored to the LIS basin at each of four corners.

A thirty inch diameter pipe will be installed from the marine terminal and travel west, connecting to the Iroquois Gas Terminal System (IGTS) approximately twenty-five miles from the FSRU. The connection pipe will be laid in a trench which will be dug to a five foot depth and is proposed to be twenty-five feet in width (Figure A). The details of the connection between the terminal pipe and the IGTS were not available in the pre-filing application and will therefore be examined at a later time. It is proposed that the Broadwater project would use the IGTS and send about 75% of the LNG to New York and 25% to Connecticut.²

IROQUOIS GAS TRANSMISSION LINE:

The Iroquois Gas Transmission System (Iroquois system or IGTS) is currently a 412 mile natural gas pipeline transportation system. The Iroquois system connects with TransCanada Pipeline system at the Canadian border near Waddington, New York. The pipeline then proceeds through New York State and into Connecticut. The Iroquois system then continues off shore into the Long Island Sound terminating at South Commack Meter Station in Smithtown, New York and in the Bronx at Hunts Point, New York.³ The Iroquois system interconnects with many facilities along the way including transmission systems and natural gas distributors in New England as well as a main line

² Joel Rinebold, Consultant for Broadwater Energy, Task Force Meeting 11-16-05

³ "IROQUOIS GAS TRANSMISSION SYSTEM,L.P." November 2005, Draft Brookhaven Lateral Project: Pipeline Section Resource Report 11, Reliability and Safety, Public, Prepares for Iroquois Gas Transmission System, L.P. One Corporate Drive Suite 600 Shelton, Ct 06484

transmission system called the Algonquin pipeline.⁴ Recently IGTS applied to deliver additional amounts of natural gas to New York.⁵

Broadwater's proposed FSRU will re-gasify the liquid natural gas on their floating facility and then use a pressurized system to force the gas into the connection pipeline which will then flow into the Iroquois system. The Broadwater project proposes to send as much as 1 bcf of gas per day with a peak delivery of a rate of 1.25bcf per day into the Iroquois system. The current Iroquois system has a maximum allowable operating pressure of 1440 psi. The application by Broadwater requires an operating pressure of 1440 psi.⁶

FEDERAL SITING REGULATIONS OF LNG FACILITIES:

In order to more fully understand the LNG siting process as it exists today it is important to examine the siting process as it has evolved.

The first four onshore mainland LNG import facilities were authorized under both Section 3 and Section 7 of the US Code (the Code). Section 3 of the Code directly regulated natural gas while section 7 controlled the transportation through interstate commerce as well as sale and resale of the natural gas. The Department of Energy Act of 1977 transferred Section 3 authority to the Secretary of Energy who delegated part of that authority to the Federal Energy Regulatory Commission ("FERC").

In addition the federal government found that the LNG import facilities were in fact a "Major Federal Action" under the National Environmental Public Policy Act therefore requiring an Environmental Impact Statement ("EIS") to be filed. FERC became the lead agency for all of the EIS reviews. The above coupled with permit requirement from other Federal, State and local agencies resulted in a very time consuming and convoluted process which impeded the development and siting of onshore LNG facilities.

In 1992 Congress provided that imports of LNG should be approved without delay and without conditions. The Department of Energy (DOE) therefore did not want to pass any regulations which would interfere with the siting process. In addition FERC became more active in the siting process and emerged as the sole agency over seeing the siting process. One of the most important FERC decisions regarding the LNG siting process came in 2002 regarding "open access". "Open access" policy allows other competitors to use the importation facility without regard to which entity received the original siting approval from FERC. FERC concluded that to encourage the large capital investments needed in the LNG market, it would no longer apply "open access" to newly

⁴ Iroquois pipeline currently has applied for a connection to the Algonquin pipeline for more versatility to their system.

⁵ In the matter of: Millennium Pipeline Company L.P., Columbia Gas Transmission Corporation, Empire Pipeline, Inc., Algonquin Gas Transmission LLC, Iroquois Gas Transmission System, L.P., Docket Nos. CP98-150-006 and -007, CP05-19-000, CP06-5-000, PF06-5-000, PF06-6-000.

⁶ A letter to FERC from Iroquois Gas Transmission System dated 10-07-05.

sited LNG import facilities. Essentially, FERC decided to treat these LNG import facilities as it treats newly discovered offshore gas, i.e., essentially unregulated. This policy would allow an approved LNG import facility to reap the benefits allotted monopolistic enterprises.

In 2002 Congress amended the Deep Water Port Act (“DWPA”) and confirmed the FERC position.⁷ The DWPA, which authorizes offshore oil receiving facilities, added natural gas to the definition of off shore receiving facilities. Congress also gave authority to the Secretary of Transportation, who also had authority over pipeline safety and the Coast Guard (now moved to Homeland Security), who delegated its authority to the Maritime Administration. However, FERC still retained authority over land or in state waters and over all the pipelines facilities in the interstate system.

The Energy Policy Act Of 2005 (2005 Act) reestablished FERC as the preemptive authority and the coordinator of all Federal permits. The Act established that FERC preempts state law. The Act states that with the exception of the Coastal Zone Management Act, Clean Air Act and the Federal Water Pollution Control Act⁸, FERC preempts local jurisdiction. Even with the above mentioned exceptions FERC controls the time table and permitting process of all required permits. As a result FERC is the sole permitting agency. The 2005 Act also officially codifies the exemption of LNG facilities from having to provide open access and this exemption is in effect until 2015.

In regards to the Broadwater project an issue arose as to whether FERC or Homeland Security would be the lead agency, because of its location in the LIS. An agreement was reached called the “*2004 Interagency Agreement between FERC, USCG & DOT*” which provided that the issues of security and safety will be the sole jurisdiction of the Coast Guard who then reports to FERC. However, FERC still retains the exclusive authority to approve or deny an application for the siting, construction, expansion or operation of an LNG terminal.

However, the Act does provide that FERC must consult with the State agencies on the siting process especially with respect to State and local safety issues. The Governor of the State in which the facility is located may establish a consulting agency to review the LNG project.⁹ The State may furnish an advisory report on the safety issues within 30 days after the application is filed. FERC then requires the applicant to specifically respond to the State report in order to get approval. In addition if FERC does approve an LNG facility, the State where the facility is located may inspect the facility for safety violations and refer any concerns the inspection finds to FERC.

⁷ Also in section 311 of the EPA of 2005 the FERC position was reaffirmed.

⁸ However where Federal air and water authority is delegated to the State, FERC is the coordinating agency and expeditors of any issues that are raised.

⁹ FERC has made it clear that Connecticut is not part of that process.

THE LNG PROCESS:

Natural Gas produced from wellheads consists of methane, ethane, propane, and heavier hydrocarbons, plus small quantities of nitrogen, helium, carbon dioxide, sulfur compounds and water. Liquefied Natural Gas (LNG) essentially is natural gas in a liquid form. The LNG process first requires pre-treatment of natural gas to remove impurities such as nitrogen, sulfur compounds, carbon dioxide, hydrogen sulfide and water, leaving primarily methane with only a very small amount of hydrocarbons. The natural gas is then cooled to -260 degrees Fahrenheit (Cryogenic), wherein the natural gas becomes a clear, colorless, tasteless, odorless liquid. Creating a liquid form of natural gas reduces its volume by 1/600th. This reduction in volume increases the amount of natural gas which therefore can be shipped in a tanker. It is also important to note that the LNG is not stored under high pressure. High pressure is introduced on the FSRU to move the LNG through the connecting pipeline to an existing transmission system. At -260 degrees Fahrenheit, LNG weighs less than half the weight of water and is denser than air; therefore, if a spill occurs in the water, the LNG would float on the water for a period of time.

LNG is not produced in the continental United States¹⁰. Most of the LNG is exported from countries with large natural gas supplies such as Algeria, Australia, Brunei, Indonesia, Libya, Malaysia, Nigeria, Oman, Qatar, United Arab Emirates, as well as Trinidad and Tobago. The principal LNG import countries are Japan (the largest volume), South Korea, a number of European countries and the United States.

HISTORY OF LNG:

In January 1959 the world's first LNG tanker carried an LNG cargo from Lake Charles, Louisiana to the United Kingdom. Currently worldwide there are over 17 export (liquefaction) terminals and 40 import (regasification) terminals. There are seven active U.S. LNG terminals:

1. Everett Massachusetts – Opened in 1971, “The Everett” was the first LNG import facility in the country. The terminal is located across the Mystic River from Boston. LNG supply tankers pass through Boston harbor to reach the terminal.
2. Lake Charles, Louisiana – This terminal is located approximately nine miles southwest of the City of Lake Charles near the Gulf of Mexico. The terminal opened in 1981. It received approximately 59 LNG shipments in 2004 and after expansion it is expected the facility will increase to 175 ships per year.
3. Cove Point Maryland – This terminal is located in Chesapeake Bay, 60 miles south of Washington D.C. The facility opened in 1978 but closed temporarily in 1980 due to low domestic gas prices. The terminal re-opened in 1995 to liquefy, store and distribute domestic natural gas to the Midwest. In 2003 the terminal started LNG imports.

¹⁰ LNG process does take place in Alaska.

There were 77 shipments in 2004 and with current expansions there will be an increase up to 150 shipments annually.

4. Elba Island, Georgia – This terminal is located in the Savannah River about 10 miles from the Atlantic Ocean. Like Cove point, the facility opened in 1978 and closed in 1980, reopening again in late 2001. The terminal received 41 LNG shipments in 2004 and with expansion it could receive an additional 77 LNG shipments per year.
5. Gulf Of Mexico, Louisiana – This terminal was completed in 2004 and received its first LNG in 2005. The system is served by LNG vessels with regasification abilities on board. These supply ships connect to an existing pipe located in the Gulf of Mexico, which then connects to a supply terminal on shore. This facility was expected to be in full operation in 2006, but with the effect of Hurricane Katrina it is doubtful that the full capacity of this facility will be realized in the near future. It is expected that as many as 60 LNG shipments per year will come through this terminal.

The 6th and 7th LNG terminals, located in the United States or its territories, are located in Puerto Rico and Alaska and are not involved in this report.¹¹

The use of LNG as a substitute for traditional natural gas in the United States is not a new idea. In the 1970's, LNG markets began to emerge in the United States as a result of the energy issues facing the nation. However, disputes with the Algerian government and the inability to formalize future contracts with the Algerian government resulted in the termination of the supply contracts. The above, coupled with the easing in the nation's energy issues, temporarily ended the use of LNG as a marketable concept.

The LNG market carries a significant capital investment, which has until recently inhibited the growth of the LNG market in the US. The advancement in LNG technology, the use of larger capacity tankers, the reduction of costs in building these tankers, combined with the dramatic increase of energy costs in world energy markets ultimately set the stage for the explosion of the LNG market in North America. (See section entitled "Energy Needs In Connecticut" of this report for a detailed analysis of the energy issues facing the Northeast) Recently there have been over 30 applications for additional LNG terminals to serve the US market, and a significant number of these have been proposed to deliver natural gas in the Northeast. These proposals in the Northeast are at various stages, ranging from simple press announcements to actual filing of siting applications. New proposals seem to be announced virtually every few months. In fact at the time of writing this report, a new proposal off the South Shore of Long Island was proposed to create an island off the Atlantic coast of Long Island which would receive LNG vessels.¹²

¹¹ CRS REPORT FOR CONGRESS, Received through the CRS web "Liquefied Natural Gas (LNG) Infrastructure Security Issues for Congress"; Updated March 16, 2005 Paul W. Parfomak Specialist in Science and Technology Resources, Science, and Industry Division. p.4-6

¹² "Proposal for Natural Gas Terminal" By Tom Incantalupo, staff writer 1-16-05 Newsday Inc.

PROPERTIES OF LNG:

LNG is neither corrosive nor toxic however, LNG, which is natural gas, is combustible, therefore an uncontrolled release of LNG could pose a serious risk of an explosion or fire. Since LNG is held at -260 F, it is considered a cryogenic, and in that raw form it is potentially very harmful to people. There are 8 major hazards of LNG:

Pool Fires: Since LNG is mostly methane it burns at a gas to air ratio between 5% and 15%. Consequently, if there were a spill of LNG near an ignition source, the evaporating gas at the appropriate gas-to-air ratio could catch fire and burn. This pool fire would spread as the LNG pool expanded away from its source and continued to evaporate. These pool fires burn at a higher temperature and more rapidly than oil or gasoline. The resulting intensity at which the pool fire burns, exerts thermal radiation which may injure people and damage property.¹³

Jet Fire: If there is a leak of compressed or liquefied gases from storage tanks or pipelines, the materials discharging through the hole will form a gas jet that entrains and mixes with ambient air.¹⁴ In an LNG facility such as an FSRU, this would be a rare event but could occur whenever pressure is used, for example on loading or unloading of the gas. In these instances the fires are very local in nature and therefore the risks are also local for both injury to people and damage to property.

Flammable Vapor Clouds: If there is an LNG spill which doesn't ignite, then a vapor cloud will form that may drift some distance from the source of the spill. Initially gas is cooler and heavier than the surrounding air and a fog will be created. In one report, under the worst case scenario and with a large containment leak, a vapor cloud could reach 2.5 miles from the original source. This report is based upon a variety of factors which are discussed in later sections. If this vapor cloud reaches an ignition source, the vapor cloud could catch fire but would not explode. Once again the intense heat from the fire could cause the same damage as a pool fire described above. Additionally, if the vapor cloud did not ignite but came in contact with people, those individuals could be asphyxiated.

Flameless Explosions: If LNG spills on water, it can theoretically heat up rapidly and re-gasify without igniting. Further research would be needed to study the effects of such leaks in tankers of the size as proposed by Broadwater to determine the safety zone and any possible effects upon the public.

¹³ *Infra*, CRS REPORT FOR CONGRESS

¹⁴ "Consequences Assessment Methods for Incidents Involving Release from Liquefied Natural Gas Carriers", Report produced by ABS Consulting Inc, for Federal Regulatory Commission. 5-13-04.

Explosions: In an unconfined area the ignition of an LNG spill will not result in an explosion. However, if some confinement of vapor cloud is present, methane can produce damaging overpressures resulting in an explosion. Confinement can be provided by virtue of spaces within the ship or nearby structures such as a building on shore or another ship.¹⁵ A larger volume fraction of hydrocarbons in the LNG (1) reduces the minimum ignition energy for detonation and (2) increases the density of the hydrocarbon mixture (and hence reduces the tendency to rapidly disperse). Both of these effects increase the likelihood of generating damaging overpressures.¹⁶ To place the risk of an explosion into perspective, if there were a spill, the methane vapors derived from LNG must mix with air at a fuel-air mixture of about 10% methane in air (about the middle of 5-15% flammability limit) and with normal atmospheric pressure, the auto ignition temperature is above 1000 degrees Fahrenheit.¹⁷

Cryogenic effects: The shipping industry requires that the area where a ship's hull may encounter Cryogenic leaks be insulated to prohibit any damage. A leak could cause the steel to become brittle and fracture. All vessels after 1976 are required by the international code to be constructed with steel that is rated for very low temperatures in those areas where LNG could be expected to leak and possibly make contact with the steel.

Rollover: When LNG supplies of multiple densities are loaded into a storage tank at one time, they initially don't mix. As a result the different densities create different layers. As the layers equalize, the lower level heats up by normal heat leak method and the lower level raises to the top as its density changes. At that point a liquid rollover can occur with sudden vaporization of LNG that maybe too large to release through normal tank pressure release valves. If not properly released, pressure can build up and cracks or other structural failure can occur. To avoid this hazard measuring the density of the cargo is imperative. There are tankers that have rollover protection systems.

Rapid Phase Transition: If LNG is released on water it will float above the water and vaporize. If large amounts of LNG are released on the water rapid vaporization can occur, causing Rapid Phase Transition. This can range from small pops to a large blast which can cause small structure damage.

ENERGY ISSUES IN UNITED STATES:

Experts have claimed that the consumption of natural gas is exceeding the production of natural gas in the US. The 2006 Annual Energy Audit demonstrated that

¹⁵ Supra

¹⁶ Supra

¹⁷ Energy Economics Research at the Bureau of Economic Geology, Michelle Michot Foss, Ph.D. October 2003

starting in the late 1980's gas consumption began to exceed domestic production.¹⁸ In 2006 that spread has reached 15% more consumption than production which is expected to continue to grow into 2030.¹⁹ In the Northeast the increase in natural gas demand is largely due to electric generation switching from coal and/or oil to natural gas which is a cleaner and more efficient energy source. In addition to being a clean burning fuel, the natural gas allows a process known as Combine Cycle Generation Technology, which is essentially using the same heat twice in the process of generating electricity. As a result, more electrical generation plants depend upon natural gas to produce electricity. Therefore, as the demand for electricity continues to grow, so will the demand for natural gas. This overall demand will continue to grow past 2025.²⁰

About 96% of the world's proven natural gas reserves are outside of North America. Since onshore and offshore natural gas production and natural gas imports from Canada will decline through 2025²¹, growth in the US natural gas supplies will depend upon conventional domestic production, natural gas from Alaska, and imports of LNG.²² It is anticipated by 2025 LNG imports will increase from the current 3% of the US gas market share to 21% of US gas market share.

As stated above electrical generation constitutes the most significant increase in demand in Connecticut and in fact in the entire Northeast, which also includes New York and New Jersey. Currently there is about 3 bcf of natural gas per day being delivered to the Northeast, New York and New Jersey. It is anticipated that by 2015 there will be a need of 5 bcf of natural gas per day in order to meet the projected demand²³. The gap of 2 bcf of natural gas per day needs a remedy. Broadwater proposes to reduce that gap by at least half.

FINDINGS OF THE TASK FORCE REGARDING CONNECTICUT ENERGY ISSUES :

In accordance with Governor Rell's Executive Order No. 9 the Task Force analyzed the Energy needs in Connecticut, safety and security of the LNG process and the FSRU, the effect upon the LIS, impact on the New Haven Harbor, and alternative energy sources. The Task Force also examined federal and state energy policies. In an extremely short time frame the Task Force had to deal with very difficult and complex issues in areas of safety, environment and energy policies. As the application progresses, the Task Force will continue to pinpoint issues and draw conclusions about Broadwater's siting application which will also be commented on by various other state and federal agencies.

¹⁸ Source U.S. Energy Information Administration presentation, Annual Energy Outlook 2006

¹⁹ Supra

²⁰ Supra

²¹ Supra

²² Richard R. Hoffmann, Director Division of Gas-Environmental Engineering Office of Energy Projects
Federal Energy Commission, Task Force Meeting 12-07-05

²³ Supra

ENERGY NEEDS IN CONNECTICUT:

Natural gas supply consists of two key elements: the actual molecules of gas (the commodity) and the ability to deliver the gas.²⁴ Connecticut does not have natural gas resources and therefore Connecticut is dependant on natural gas being transmitted through a variety of pipelines which currently traverse the state. Connecticut obtains its gas from the Gulf of Mexico and Canada through pipelines traversing New York and Northern New England. Gas is also supplied to the New England market from an existing LNG facility located in Boston. There are three major pipelines that deliver the gas to the New England area: the Tennessee pipeline, the Iroquois pipeline and the Algonquin pipeline (See attached map). Connecticut is at the end of each of these natural gas pipelines. Gas prices are resultantly increased due to length of pipeline over which it takes the gas to be transmitted to Connecticut. CT Natural Gas, Yankee Gas and Southern Connecticut Gas have to outbid other potential buyers that are closer to the gas wellhead, that consequently pay a lower cost²⁵. This places the Northeast area, and in particular Connecticut, in a disadvantage with respect to obtaining lower energy costs for Connecticut residents.

Over the last several years, much like the entire US, the demand for gas has increased. Although at the present time, Connecticut has been able to handle the demand for increased gas, there is a concern that in the near future that demand cannot be met. In order to meet reliability obligations, as set by the DPUC, each local gas distribution company must have enough natural gas supply to meet firm sales customers requirements based upon the coldest day in the last 30 years. This is the maximum amount of gas this distribution company requires on peak demand days.²⁶ Such a standard insures that firm customers retain service even during periods of a long sustained cold spell. Over the next 5 years there is concern that the necessary DPUC standard for a 30 year design supply for firm residential, commercial and industrial local distribution company customers may be in jeopardy.²⁷

As mentioned above natural gas has emerged as the premier fuel for electrical generation as a result of efficiency and its clean burning characteristics which meet the rigorous environmental standards. As a result of electric generation plants switching to natural gas a tremendous demand for natural gas has quickly emerged. In order to demonstrate the amount of gas an electrical facility needs, one can examine the electrical generation facility known as Bridgeport Energy Partners which receives its natural gas from Southern Connecticut Gas Company. That facility alone consumes more gas than all of Southern Connecticut Gas Company's customers combined.²⁸

²⁴ Presentation by Chairman Donald Downes and Commissioner Anne C. George, Dept. Of Public Utility, Task Force, 12-15-05

²⁵ Supra, Chairman Downes

²⁶ Supra

²⁷ Supra

²⁸ Supra

Based on the above, it is clear that there is a real need for additional gas supplies on a year-round basis in the Northeast and specifically in Connecticut. DPUC, ISO New England (an independent operating organization in charge of New England's electric grid system) and FERC determined that to achieve the goal of more natural gas to this area, new infrastructure must be built. There are limited methods to obtain more natural gas in Connecticut. Additional pipelines may need to be constructed; or additional LNG storage terminals need to be sited; or new re-gasification facilities need to be created; or the capacity of existing re-gasification facilities need to be increased. Later in this report the Task Force discusses the need for the investment in alternative fuel sources as well as other possible solutions, including the need to investigate clean coal as possible alternatives.

SAFETY AND SECURITY:

It is clear that security and safety is a paramount concern over the operation of the FSRU, as well as the tanker supply vessels. Since the inceptions of LNG as an energy source in 1944, there have been a number of incidents impacting land based LNG facilities and LNG carriers. A few of these reported incidences include those where injury and death have occurred. These incidences of injury and death are reported by Broadwater in their preliminary filing²⁹ as well as various other reports regarding the operation of LNG facilities. For the land based facilities there were at least 5 reported accidents. Since the Broadwater project is the first FRSU in the entire world, obviously there can be no reports of any incidences of injury and/or death related to an FSRU. Since the FSRU is similar to land-based storage and regassification facilities, some analogies can be drawn.

In 1944 the Cleveland, Ohio LNG plant failed and spilled its contents into the street and storm drains. An explosion resulted, ultimately killing 128 people. The cause of the containment failure was the steel alloy that had a low nickel content, which ruptured when exposed to the extreme cold of LNG causing the LNG to spill.

In 1973 in Staten Island, New York a fire started while repairing the interior of an empty storage tank. The resulting pressure rose so fast that the concrete dome on the tank lifted and then collapsed down inside the tank killing 37 construction workers.

In 1964 and 1965, accidents occurred in Arzew, Algeria. The 1964 accident happened when lightning struck the facility during unloading of the LNG and the vapor ignited. A similar event happened while the vessel was at sea in 1965. In both cases the fires were extinguished quickly and there was only one reported death.

In 1979 at Cove Point, Maryland, there was a natural gas leak at the receiving site coupled with a malfunctioned circuit breaker. The gas ignited and an

²⁹ Broadwater preliminary filing, August 2005

explosion occurred, killing one plant employee and seriously injuring another. The explosion also caused approximately \$3 million dollars in damage.

In 2004 in Skikda, Algeria, an explosion killed 27 workers and injured 72 others. The initial investigation blamed the explosion on a steam boiler that was not properly repaired. Upon further investigation, it was believed that the blast may have been caused by an LNG leak.³⁰ The Task Force could not find a final determinative report on this incident.

In addition to the above there have also been a number of accidents or problems involving LNG carriers. A list of such accidents is available in the Task Force archives. It is important to note however, that although some of the LNG tankers and associated facilities did have problems, there were no reported deaths in these LNG mishaps.

Overall, by all accounts, the safety record of LNG over the last 40 years is impressive. Broadwater Energy's proposal embarks on a project which pushes the envelope of this evolving industry. Broadwater would be the first ever free floating FSRU in world. Although the technology is based upon the same technology used for the LNG tankers, the initial filing by Broadwater describes an FSRU with a storage capacity of 350,000m. As of the date of this report, the largest LNG ships in service range between 150,000m to 200,000m. Furthermore, no vessel of the size proposed by Broadwater has ever been tested or constructed for service to transport LNG. It should also be noted that there are no known models which can describe certain events (weather, explosion or accidental spills) to the limit of the capacity proposed by Broadwater. Consequently, the Broadwater project raises concerns, questions and cautions, as will be further described.

There are several different areas of safety concerns associated with the Broadwater project: the LNG supply boats as they enter the LIS, the LNG supply boats as they transfer the LNG to the Broadwater FSRU, the FSRU in its static position, and accessory land-based supply locations. The overseeing authority to review and analyze the safety and security aspect is the Department of Homeland Security which has given the US Coast Guard the task of ensuring the safety of this project. At the time of this report no safety report has been issued by the Coast Guard and a security area around the FSRU and LNG supply tankers has not yet been delineated by the Coast Guard, due to incomplete information furnished by Broadwater.³¹ As a consequence of the Coast Guard's inability to conduct a complete review of Broadwater's pre-filing application which, this Task Force is at a disadvantage. Therefore, as in much of this report, after there is ample opportunity to review the actual siting application by Broadwater along with the final analysis by the Coast Guard, an additional report by this Task Force will be drafted.

³⁰ Nelson Antosh, "Vast Site Devastated", Houston Chronicle, Jan. 21,2004, Business p.1

³¹ Letter from Coast Guard to Broadwater dated 2004.

US COAST GUARD'S ROLE³²

The Coast Guard is the lead federal agency for U.S. maritime security, including port security. The Coast Guard is responsible for inspecting, tracking and boarding commercial ships entering U.S. waters. The jurisdiction for Long Island Sound (LIS) is the US Coast Guard Command based in New Haven, Connecticut, currently under the direction of Port Captain Peter Boynton. The Coast Guard, Sector Long Island Sound, has jurisdiction over all activities in Connecticut and Federal waters of the LIS both in New York and in Connecticut and in various other waterways and rivers. The area not only includes the LIS but also includes the exposed Atlantic coast south of Long Island extending 200 miles out to sea. There are 500 Coast Guard men and women in Coast Guard Sector Long Island Sound, including a command staff, eight rescue stations, four cutters, two aids to navigation teams and a field inspection office.

In the siting of the LNG project, the Coast Guard's role is to analyze safety and security of the project. Although FERC is the lead agency there is an agreement between FERC and the Coast Guard regarding the siting permit process of the Broadwater project.³³ The Coast Guard's role is not to eliminate risk; it mitigates risk to acceptable standards. In order to analyze each risk the Coast Guard breaks that risk down to three elements: threat, vulnerability and consequence.³⁴ The Coast Guard's role is outlined in Navigation and Information Circular 5-05. The Coast Guard will first comment on Broadwater's preliminary filing and then file a final report to FERC on its findings on safety and security issues after the actual siting application is filed by Broadwater.

The Coast Guard performed a Ports and Waterways Safety Assessment (Assessment) in May of 2005. This Assessment was performed as a baseline assessment and was not done as a result of or in response to the Broadwater project. The participants included individuals and groups representing marine pilots, towing vessel operators, passenger vessels, recreational boaters and others. The point was to evaluate safety issues in the LIS. This Assessment is a helpful tool in analyzing the impact of the Broadwater project. Some of the issues raised by the Assessment were the lack of marine fire fighting equipment in the LIS and the dependency of using New York Harbor marine firefighting equipment for a potential fire event. In addition the Assessment examined the amount of traffic in the LIS. The Coast Guard report found a significant amount of mixed use in the LIS.

There about 700 foreign ships per year that enter the various ports in the LIS. Also there are another 1,200 domestic commercial vessels that enter the LIS on their way to port. Approximately 2,000 commercial vessels per year enter the LIS and are considered port traffic. In addition, there are another 2,000 to 4,000 commercial vessels

³² Captain Boynton Captain of the Port for Long Island Sound, US Coast Guard, Task Force Meeting 11-04-05

³³ Interagency Agreement Among the Federal Energy Regulatory Commission United States Coast Guard and Research and Special Programs Administration for the Safety and Security Review of Waterfront Import/Export Liquefied Natural Gas Facilities.

³⁴ *Infra*, Captain Boynton

per year traversing the sound on their way to or from New York and/or New Jersey. These ships don't stop at the various ports, but use the LIS as a waterway for reasons like protection from the weather. Collectively all of the above vessel traffic results in 4,000 to 6,000 commercial vessels per year either arriving at a port on LIS, or moving through the LIS. In addition to the above there is also a great deal of recreational and commercial fishing activity in the LIS. These activities are more fully analyzed below.

The combination of the various mixed uses on the LIS can cause difficulties in managing the traffic. There are rules and guides to aid all of these different types of uses in order to have them work together. For example there are aids to navigation and weather to help to create a safe voyage. There are "rules of the road enforced by the Coast Guard to ensure that all safety requirements are met, allowing all the different traffic to safely use the LIS at the same time.

Also noted in the report are the areas of congestion. The New Haven Harbor, Port Jefferson, Bridgeport Harbor and the New London area are places in which congestion is an issue. The Race, which is on the border of New York and Connecticut in the eastern part of the LIS, is another point of congestion. The deepest marked channel of The Race is 1 to 1.5 miles in width and is utilized for a variety of reasons. In its entirety, The Race is 3.5 miles in width. The Race is an entryway into the LIS by commercial vessels. It is also a well known and highly used fishing area for both commercial and recreational activity. The Race is also used by the Navy's Groton Submarine Base as a route for submarines to travel in and out of the Atlantic Ocean for national security.

SECURITY ASSESSMENT:

The Coast Guard is responsible for the analysis of the security for the Broadwater project. The Coast Guard, in an effort to ensure all security issues are addressed, will established an Area Maritime Security Committee including federal, state, county and local law enforcement, as well as commercial interests, infrastructure protection specialists, emergency service providers and others to examine the risk of Broadwater.³⁵ These members represent Connecticut and New York.

The first step in the security assessment by the Coast Guard had already begun when Broadwater filed its preliminary application. The Coast Guard required Broadwater file a vulnerability security assessment report for review by the Coast Guard. The vulnerability security assessment report submitted by Broadwater was determined by the Coast Guard to be insufficient. The Coast Guard has requested further information from Broadwater and to the best of the Task Force's knowledge the Coast Guard's request has gone unanswered. Obviously, the Task Force takes the position until all of the issues raised by the Coast Guard are answered and the Coast Guard is able to analyze the requested information, FERC should not move forward on this application.

As mentioned earlier, the Coast Guard determines risk in three elements: threat vulnerability and consequence. An example of the risk analysis, as it applies to

³⁵ Infra, Captain Boynton

Broadwater, would be determining the threat by examining what might potentially happen to the FSRU. The vulnerability is how something might happen to the FSRU and how likely that is. The consequence is what the result would be if that event happened to the FSRU.

According to the Coast Guard's letter of November 4, 2005, the various analyses as submitted by Broadwater failed to contain the required information.³⁶ Therefore the Coast Guard is requiring Broadwater to obtain new information including new modeling and new calculations of the various spill events. Therefore the Coast guard has yet to complete its review. In addition some information has been determined to be Sensitive Security Information (SSI) and has not released it to the Task Force. An official request by the Task Force has recently been made for this information and as of the date of this report there has not been a response to this request. As a result the Task Force has not been able to do thorough analysis in the area of security. However based on some of the information it did uncover, the Task Force offers these suggestions:

For the FSRU and LNG Tankers

Safety zone(s)

Bridge watch - with radar, VHF-FM, visual

Vessel escort for the LNG

Vessel traffic management, like an airport tower

A number of gas detectors for methane, ultraviolet and infrared fire detectors, smoke and combustion detectors, low temperature detectors, pressure of LNG detectors and vapor detectors

Emergency shut off and shut down capabilities

Tugs with high capacity fire monitors

Testing navigation, propulsion, steering before entering LIS (LNG)

State pilot on board

FSRU & LNG Breakaway from each other without spillage

Mooring design to provide redundancy

Consequence Management

Develop/test emergency response plan: approved by the Coast Guard, adopted by each effected municipality or county where the FSRU or LNG can potentially have an impact and work with FERC on a plan review for the FSRU yearly.

Make sure that Broadwater implements mitigation measures in the event of an incident and Broadwater should place a performance bond in the name of both New York and Connecticut to ensure that if there is a spill the clean-up work will be done.

Make sure the FSRU meets all the standards.

If constructed, to review operation manual and licensing of operating people and test emergency plan.

Annual review of the security assessment by U.S. Coast Guard, New York and Connecticut.

³⁶ Letter from Capt. Boynton to Broadwater dated 12-21-05

Monitor Broadwater implementation of mitigation measures and the Coast Guard will monitor its own mitigation measures
 Periodic test on response plan (all cost to be paid by Broadwater)
 Site specific modeling or FSRU up to 350,000m as well as the LNG up to 250,000m- this is critical to fully understand the various scenarios with respect to this project

OTHER CONCERNS:

The LNG supply vessels must pass in the area of the U.S. Navy Submarine Base at Groton, CT. This is a major concern of the Task Force due to the sensitive nature of this area. Recently the Groton sub base was deemed an important, vital security interest for the United States, and for that reason it was removed from the federal base closing list. As a facility deemed vital to national security interests, there is a great deal of concern in allowing highly volatile cargo and a potential terrorist target to pass in close proximity to the submarine base. In addition this Task Force has serious concerns that LNG traffic passing in such close proximity would have a negative impact on the future of operation of the Groton Submarine Base and its potential return to a future base closure list.

The areas around the Groton sub base are heavily traveled by the submarines. Each of these submarines requires a security escort for sub movements. These escorts consist of Coast Guard boats equipped with mounted machine guns in co-operation with the Navy. The traffic associated with submarines varies. There are days in which there are no submarine movements and on other days there can be up to 6 submarines a days.³⁷ As stated earlier, the traffic congestion in the Race is an issue identified in the Coast Guard assessment report. The vessel congestion in this area results in a risk of a collision between the LNG tankers and a submarine. In 2002, east of the Strait of Gibraltar, an LNG tanker named Norman Lady collided with the U.S. Navy nuclear-powered attack submarine, the U.S.S. Oklahoma City. Although no LNG spilled or was released, the incident does raise the level of concern that these sorts of collisions are possible.

In addition to the submarine traffic, the narrowness of The Race itself also presents a concern. As mentioned earlier, the deepest part of The Race is 1 mile to 1.5 miles in width. The Coast Guard will require separation between the vessel traffic, submarine traffic and LNG tankers. The restriction of the width in The Race causes the Coast Guard to focus more closely on the passing of the vessels. Additional precautions are clearly needed to ensure safe passage of the LNG tankers.

This again raises the issue of the Groton Submarine Base. If the congestion proves to be an interference with the operations at the Sub Base, to the point where it may adversely affect its status as a strategic military facility, then this Task Force would flatly recommend denial of the Broadwater proposal. This issue is an extremely important issue and is raised again in the section under "intentional acts".

³⁷ Infra, Capt. Boynton

There have been three reports that analyzed and hypothesized events that could impact public safety for LNG supply ships and the FSRU. These reports are Sandia Laboratory's Guidance on Risk Analysis Implications of Large Liquefied Natural Gas (LNG) Over Water³⁸ (hereinafter referred to as "Sandia report"), Richard Clarke's LNG Facilities in Urban Areas³⁹ (hereinafter referred to as "the Clarke report") and ABS report on Consequences and Assessment Methods for Incidents Involving Releases from Liquefied Natural Gas Carriers⁴⁰. All of these reports examine different scenarios to determine the effect upon an LNG tanker. There are no reports applying these scenarios to an FSRU. The different scenarios are as follows:

INTENTIONAL ACTS:

This section concerns those acts which are deemed intentional acts by a third party. The Congressional Research Service Report For Congress Dated September 9, 2003 regarding Liquefied Natural Gas (LNG) Infrastructure Security: Background and Issues For Congress stated that these LNG tankers and land-based storage facilities are vulnerable to terrorism⁴¹ (herein after referred to as the "Congressional report"). The Congressional report suggests that although a terrorist's goal is to inflict pain on the American people with a loss of life, it is also a goal of the terrorist to cause destruction to the American economy. It can readily be determined that an interruption in the operation of an FSRU, providing a billion cubic feet of gas per day to New York City, would have a direct effect upon New York and its economy. In addition, the ripple effect across the United States, caused by an attack to an important energy transmission source, could be of a significant interest to terrorists. The above concept is emphasized in the Congressional report which states "[s]ince LNG is fuel for power plants, heating, military bases, and other uses, disruption of LNG shipping or storage poses additional "downstream" risks, especially in more dependent regions like New England"⁴².

Therefore the Task Force has identified 5 intentional acts that need to be addressed by Broadwater via the FERC application process. Once again it is important to note that the Task Force comments are the concerns of the Task Force without the benefit of the comments of the Coast Guard. Once the Task Force receives a copy of the Coast Guard comments, other concerns of the Task Forced may be generated. Accordingly, the Task Force analysis is based upon the information it has received in the preliminary filing

³⁸ Sandia National Laboratories, December 2004, Guidance on Risk Analysis Implications of Large Liquefied Natural Gas (LNG) Over Water, Sandia National Laboratories Publication No. SAND2004-6258.

³⁹ Good Harbor Consulting, Inc. LNG Facilities in Urban Areas, A Security Risk Management Analysis for Attorney General Patrick Lynch, Rhode Island, May 2005.

⁴⁰ ABS Consulting Inc., Consequences Assessment Methods for Incidents Involving Releases from Liquefied Natural Gas Carriers, May 13, 2004, ABS Consulting Inc for Federal Energy Regulatory Commission under contract number FERC04C4096.

⁴¹ The Congressional Research Service Report For Congress Dated September 9, 2003 regarding Liquefied Natural Gas (LNG) Infrastructure Security: Background and Issues For Congress, Paul W. Parfomak, Specialist in Science and Technology Resource, Science, and Industry Division.. p. 10

⁴² Infra, The Congressional Research Service Report For Congress p. 11

only. It is clear that the risks from intentional attacks can be significantly reduced with appropriate security, planning, prevention and mitigation.⁴³ In all cases, every analysis must assume a worst case scenario of a multiple 305,000m storage tank failure.

HIJACKING

Hijackings of ships do occur from time to time. The Clarke report identifies at least two instances where ships were hijacked at sea. However it is important to note there have been a number of incidents in which a ship has been hijacked and the crew disabled. There were 325 pirate attacks in 2004. The most (93) have occurred in Indonesian waters, one of the areas from which major LNG shipments to the US would originate. In fact in 2005 there were two attacks on vessels which made headlines; one was an attack on a cruise ship and the other was a successful attack on a freighter. As reported in Clarke's report "[i]n addition new trends in piracy have begun to appear which could have implications for U.S. homeland security. Recently, the seizure of ships has failed to conform to established patterns. Rather than overpowering a ship's crew and stealing the cargo or holding the crew for ransom, pirates now seem interested in learning to steer ships and navigate them through narrow channels, and then often release the crew unharmed with the cargo intact".⁴⁴ An almost 9-11 type "flight school" training to understand the ship's navigational system may be occurring. An example of this type of training can be found in Clarke's report when a Singapore tanker was attacked in 1998 and the pirates gained control. This tanker had 1,000 tons of diesel and jet fuel. The pirates repainted the ship and renamed it. The pirates then changed the flags from Singapore colors to Honduran colors. The ship then sailed into the Chinese port. The crew managed to untie themselves and alert the authorities. This type of attack needs to be examined and procedures need to be put in place to prevent the same.

The Task Force heard testimony that under the Maritime Transportation Security Act there is a required four days advance notice of arrival. This notice requires the transmission of a crew list.⁴⁵ The crew list is then run through the Coast Guard data base as well as other agency data bases in Washington. In addition the Coast Guard examines the last five ports of call the ship entered and also investigates the cargo the ship is handling. A review of the information is then analyzed to determine if a further review and/or investigation should be made. The information obtained on the vessel is analyzed twice a week and the results are distributed to the appropriate agencies in Connecticut and Long Island. If there is a security or safety concern, as determined by the Coast Guard, the Coast Guard could send a boarding team by helicopter to board the ship at sea for further inspection; wait to board the vessel at the boarding station or at its anchor in the sound; or decide to board the vessel at a pier.⁴⁶

As the LNG supply ship makes it way through the LIS to the FSRU it would be designated as a high-risk vessel by the USCG. At the time of this report it is unclear if

⁴³ Richard Sheirer, Senior VP- Giuliani Group, Broadwater security consultant

⁴⁴ Clark's report p.34

⁴⁵ Infra, Capt. Boynton

⁴⁶ Infra, Capt. Boynton

these LNG supply vessels will ever be in Connecticut waters. To the extent that the vessels are in Connecticut waters, an obvious concern about the location and proximity to the Groton sub base was of particular concern to the Task Force. The Coast Guard designated procedures and Connecticut law have mandatory pilot boarding areas for pilots coming into the LIS. There are two pilot boarding stations at points located outside the LIS. One is located at Montauk Point, Long Island, New York and the second point is located off Block Island, Rhode Island. These pilots provide a safety factor from several aspects. The first protection is ensuring that the local pilot will know the navigable waters and the second is that the local pilot would have control over the vessel. These local pilots must first satisfy a host of requirements before they can become pilots certified and licensed by the State of Connecticut.

There was a concern that if a ship was taken by a rogue crew, there are several scenarios which would cause a significant direct impact to Connecticut, its residents and perhaps even to the nation.

First if a large LNG tanker was detonated at the mouth of The Race such an incident may have an impact upon our Groton Submarine Base. This impact could result in a temporary shut down of a portion of The Race. How long it might be shut down cannot be assessed by this Task Force, however, some interruption would clearly occur. Not only would submarine traffic be disrupted, but also all vessel traffic to New London Harbor, New Haven Harbor, Bridgeport Harbor, and perhaps even New York Harbor would be stopped or delayed. This impact, depending on the nature and extent of the shut down could have a dramatic effect. As discussed under the New Haven Harbor section of this report, the New Haven Harbor is a vital interest which must be protected.

Second, an LNG tanker captained by a rouge crew may also have the opportunity to move the ship into a strategic area near the Millstone Nuclear Power Plant. As discussed with Capt. Boynton certain areas of any power plant may have certain vulnerability. Therefore, particular attention should be afforded such facilities or the consequences maybe heavy. There are a number of concerns and some of these concerns can simply be addressed by determining the depth of the water around Millstone, such that a vessel the size of an LNG tanker cannot make its way too close to Millstone. Other issues are to determine the location and proximity of vital areas of the power plant and to evaluate the potential risk to Millstone based upon that proximity. The Task Force understands that these issues may be considered Security Sensitive Information and therefore may not be fully disclosed to the Task Force. However, the Task Force will do its best to understand how the safety and security issues are handled at Millstone.

Third, an explosion of an LNG tanker (capacity of 250,000m) while it is re-supplying the FSRU (capacity of 350,000m), could potentially cause a significant explosion with dire consequences. To date no model exists to analyze the effect of such an event. Issues such as shock wave or tidal wave should be analyzed before any approval is granted for this project.

The Task Force is particularly concerned about the collateral effect the Broadwater project may have on the future of the Groton Submarine Base. As mentioned

earlier the Groton Sub Base was on the list as a possible base closure by the Federal Government. Only quick and decisive action by Governor Rell, local State Senators, Representatives, U.S. Senators and the Congressional delegation, saved the Groton Sub Base. The saving of the sub base was critical to the economy in Connecticut. This issue remains vital and critical to Connecticut. Much of the answer lies with a number of unknown factors: 1) The radius of a security zone around the LNG tanker; 2) the exact path of the LNG tanker; 3) the report from the US Defense Department; 3) the US Coast Guard risk analysis; and 4) the projected modeling projections if the 250,000m LNG tanker were to explode.

All of Connecticut can remember just a few short months ago when we collectively held our breath waiting for the decision on the possible closure of the Groton Sub Base. The Task Force wants to insure that any approval of the Broadwater project would not jeopardize the Groton Submarine Base and would be against any project that in any way jeopardized the future viability of the Sub Base.

In addition to the unique concern over the Groton Submarine Base, The Task Force is concerned over the potential hijacking issue. As a result the Task Force makes the following recommendations:

1. No boat can enter the waters of the Long Island Sound until and unless all identifying documentation is made by US Coast Guard.
2. All the tankers must have a local pilot who will board the vessel at one of the boarding points outside the LIS.
3. All pilots who board the vessel will be escorted by an armed member of the USCG.
4. Inspection of security and tanker loading at the port of origin in Trinidad.⁴⁷
5. 96-hour advance notice of arrival of an LNG tanker⁴⁸
6. Harbor escort of LNG tankers by armed patrol boats, cutters, or auxiliary vessels⁴⁹
7. A USCG boat with a gun turret also be present to meet the LNG tankers and security passwords be in place to ensure smooth operations
8. Perhaps a bomb sniffing dog or bomb detecting device be used for each ship to ensure no device was planted on the ship.
9. Schedule of the LNG deliveries must be known to the Groton sub base at least seven days in advance.
10. All LNG shipments are interruptible in the event the Groton sub base is called into active duty.
11. Board LNG vessel at the minimum distance of the Boarding Station and have methods of boarding the vessel to assume positive control of the vessel.⁵⁰
12. A plan must be in place in the event a submarine needs to get out of the Race at the same time an LNG tanker is entering or is in the Race. The plan needs to specify a procedure and a method of initiating that procedure.

⁴⁷ This is currently being done for the Boston, Mass. LNG

⁴⁸ Supra

⁴⁹ Supra

⁵⁰ Infra, Capt. Boynton

13. The radio frequencies needs to align at all times for all participants to ensure that critical communication between various points of control i.e.: Coast Guard, LNG tankers, Long Island contacts, Connecticut contacts, Naval installations in Groton and other such points of control are all on the same channel.
14. All LNG supply tankers must have a transponder in the detail and manner as determined by the USCG
15. The FSRU & LNG tankers should have intruder alert detection devices which automatically transmit to the US Coast Guard
16. Significant fire suppression systems
17. Hazard detection systems
18. The FSRU must be able to be self efficient in all respects to deal with a variety of emergencies, as a result of being in the middle of the LIS. Therefore a complete emergency plan covering a large variety of scenarios must be approved and in place.
19. The FSRU should contract out the security on the ship to ensure that said security team is up-to-date with the latest surveillance and other terrorist or sabotage concerns.
20. Broadwater must have a land based support and safety base located in New York and Connecticut which base must be a secured facility with the ability to react quickly to emergencies at the FSRU. This component must be able to hold a number of tugs in the event the FSRU breaks loose, with fire suppression equipment and other safety equipment as deemed necessary by the USCG.
21. That the additional cost for these and other security measures be born not by taxpayers but by Broadwater.

AIRCRAFT ATTACKS

The FSRU and its supply ships are in very close proximity to three small unassuming airports. These three airports are Tweed New Haven airport in New Haven Connecticut, Macarthur Airport in Long Island New York and Islip Airport in Islip New York. These airports are relatively small airports with little if any security. As a concern to the security at small airports, in 2005 at Danbury airport, a small local airport, a drunken 20 year old man was able to steal a plane and fly it to New York without diction from authorities⁵¹. Therefore security risks at these small airports are a concern and need to be addressed. The Task Force makes the following initial recommendations:

1. A full report from the State Aviation Task Force⁵² on the security requirements with respect to the LNG.

⁵¹ New York Times June 22, 2005

⁵² As a result of the Danbury Airport incident a State Aviation Task Force meets quarterly. James "Skip" Thomas, Commissioner of Emergency Management and Homeland Security. Task Force Meeting October 10, 2005.

2. Requirement of additional security at the three local airports including but not limited to 24 hour surveillance of the property, on site 24 hour protection.
3. The airport premises must be fenced in.
4. An analysis of existing security be done at each of the three airports which analysis is reviewed by local state and federal Homeland security branches who will then make recommendations for any, if any, upgrades with respect to the security issues.
5. A security plan and an emergency plan in place at all three airports dealing with the potential commandeering of a plan headed for the FSRU.
 - a) A security plan on the FSRU in the event a suspicious plane is heading towards the FSRU. Notification to Coast Guard
 - b) Notification to Federal and State Homeland Security offices.
 - c) Notification to all local emergency management teams
6. A direct link with the local airports and the FAA therefore if a suspicious plan approaches defensive procedures can take place.
7. Any and all costs of the additional protection paid for by Broadwater.

SMALL BOAT ATTACK:

Small, swift and fast boats can pose a potential attack to any floating vessel. As demonstrated in the attack on the USS Cole and the French oil tanker Limberg, as well as other vessels, a stationary vessel is vulnerable to an attack from a small fast boat filled with explosives. The FSRU will be a stationary target at all times. The planning would be a relatively simple undertaking. The Task Force has a number of steps Broadwater can take to warn against such an attack:

1. Safety zone around FSRU&LNG
2. Bridge watch on FSRU&LNG- with radar, VHF-FM, visual
3. Vessel traffic management, like an airport tower
4. Broadwater must have a 24 hour patrols around the FSRU at all times, which patrol can monitor the area and have a direct line with the coast guard. These patrols should be a third party security force responsible to the US Coast Guard.
5. An emergency plan in the event a suspected craft enters the restricted area.
 - a. Notification to Coast Guard
 - b. Notification to Federal and State Homeland Security offices.
 - c. Notification to all local emergency management teams

These suggestions need to be discussed further among three various agencies. Also the Task Force makes these and the other suggestions with the understanding that the Task Force has not had the full opportunity of reviewing the final filing by Broadwater

UNINTENTIONAL EVENTS AND DESIGN REQUIREMENTS:

The unintentional events, as determined by the Task Force, involve possible collisions with other ships, collision between the supply LNG and the FSRU, accidental spills, weather events, and earthquakes. All of the above are possibilities when dealing with any structure in open water. The issue here is unique because although the proposed FSRU is based upon existing technology, to date there are no operating FSRUs in the world. And even though Broadwater is utilizing existing LNG technology as well as existing technology associated with land base regasification units to design their FSRU, currently there are no operating LNG supply boats greater than 150,000m in operation and no operating FSRU in the world.⁵³ Broadwater's proposal is for an LNG supply boat having a storage capacity of 250,000m while the proposed FSRU is expected to have a storage capacity of 350,000m. Both of these vessels will need much testing, designing and modeling to determine if the proposed vessels can adhere to the industry standards on both safety and security.

American Bureau of Shipping

The American Bureau of Shipping (ABS) was established in 1862 as a not for profit International Ships Classification Society. The purpose of ABS is to stamp approval on ships that are being built for particular purpose. ABS establishes Classifications standards for vessels and then certifies those vessels for the intended usage. ABS develops safety criteria, guidelines and technical design standards for the vessels. In addition ABS performs verification of design before construction and the oversight of the vessel during construction. ABS will also test the various systems used on the vessel including but not limited to fire suppression system, processing systems, electric power generation system and general navigational systems. ABS will also test the mooring system and its design to make sure the mooring can handle various storm events. If ABS is satisfied with the vessel, it will Certify the vessel. The Certification by ABS can be critical to the shipping industry as ABS is considered one of the most important certifications that a ship can receive.⁵⁴

The ABS has created a Classification just for LNG and FSRU vessels. This Classification takes into account the unique cargo of the LNG which it is transporting, storing and processing. For example for an LNG, and the same principal for FSRU, the vessels are all required to be doubled hulled. Part of ABS design criteria all LNG vessels is that all LNG vessels must have a containment backup system. If there is a breach of one containment system there is a backup second containment system which is resistant to fracture from cryogenic material. Even before the actual construction of the vessel, the ship builder must demonstrate to ABS, through a variety of data, tests and modeling that the containment system can work given a series of events. In addition, through a variety of testing performed by others and reviewed by ABS, ABS ensures that vessel can withstand a variety of hazards that can occur on an LNG. For example: loss of

⁵³ ABS presentation to Task Force 1-24-065.

⁵⁴ Supra

containment, cryogenic spill on deck, gas release, toxicity, fire and explosion, loss of stability and collision or grounding.⁵⁵ These are a few of the issues which ABS will require the owner to demonstrate, through a series of models and tests, that the vessel has met the strict standards required by ABS.

There are also technical considerations which need to be taken into account when building of a LNG tanker and a FSRU. These technical considerations need to be identified and analyzed. Some of the technical considerations as follows⁵⁶: a ship can generally avoid the weather but the FSRU can't avoid the weather because it is stationary, therefore an analysis must be done to ensure it can handle at least a 100 year storm and subject to the largest wave action in the LIS; the LNG tanker will supply the FSRU with LNG and since both vessels will be sea, the combination of weather and tide require a detailed examination of the loading arms to determine if additional flexibility in the loading arm would be required based upon the different movements at sea; since the vaporization process on the FSRU will be a continuous process and said process will occur on the deck of the FSRU, LNG will be exposed outside of its protected container system more frequently than a typical LNG carrier and therefore the frequent and continuous exposure of the LNG at sea needs to be analyzed and factored into the risk analysis;⁵⁷ the pressure to discharge the gas into the gas transmission line, after regasification on the FSRU, will be about 1000 to 1500 psi as opposed to a LNG carrier where the pressure upon discharge is only at 100 psi therefore this increase in constant pressure on the FSRU needs to be addressed. In addition ABS will require an analysis to be done by the owner to determine dynamic loading capacity to ensure that the vessel can be used for its intended use, fatigue analysis, mooring analysis, sloshing effect, failure models and effects analysis. These are a few of the issues that ABS will work to resolve, if possible, at the design stages of both the LNG and the FSRU.

Once ABS certifies a vessel, that certification requires the vessel to be continuously and rigorously inspected on a set schedule. Normally a vessel is inspected every 2.5 year at a dry dock and a special survey in dry dock every 5 years,⁵⁸ which an LNG can be required to meet but since the FSRU is permanently moored, ABS will require the inspections to be made with underwater with divers using equipment to take certain measurements. The inspection of the FSRU will be of the same caliber and magnitude, as if the FSRU was at dry dock.

Anything Classed by ABS is subject to the above periodic inspections, which inspections include the inspection all of the systems on board the vessel. As a result the inspections will require the vessel to be shut-down in order to be examined periodically.⁵⁹ Classification by ABS is an ongoing process that lives with the life of the vessel. If the

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vessel fails to pass the various inspections the vessel is dropped from the classification and the owner is immediately notified.⁶⁰

Finally, ABS will make sure that other requirements imposed by local and federal jurisdictions are met. ABS also works in conjunction with FEERC, US Coast Guard, and if necessary local agencies such as fire and emergency teams to ensure that all applicable regulatory requirements and guidelines are also met. In fact, a member of the US Coast Guard is stationed in the ABS corporate headquarters in order that ABS is always abreast of the Coast Guard concerns regarding various vessels.

ABS engineering department, on July 27, 2005, approved the Broadwater project "in principal". "Approved in principal" is defined as a project that has been presented to ABS which project has identified various standards, principals and risks associated with the development of that project.⁶¹ ABS now will review the designing, testing and modeling that will address the various issues raised by the project and determine if there is evidence that a vessel can be designed and constructed to address the safety issues to the satisfaction of the ABS. For example ABS is concerned over the sloshing effect in the FSRU. There are parameters on the amount of LNG stored that can be stored in a containment area of a LNG tanker. If not enough LNG is stored in the containment area a significant sloshing effect can compromise the safety of the LNG. If too much LNG is stored in the containment area a significant sloshing effect can compromise the safety of the LNG as well. It is recognized that with the FSRU, there will be times that the level of LNG will decrease below acceptable standards as the LNG on the FSRU is pushed through the gas transmission line. As a result Broadwater will need to prove to ABS that if they exceed the minimum level in the containment tanks they would not cause a safety issue.⁶²

The largest LNG vessel in operation presently is 145,000m.⁶³ There are vessels which are 155,000m to 165,000m which are being constructed. In addition there are vessels of 200,000m to 217,000m of which 20 orders have been placed and the process of to designing and constructing these vessels has begun. Most recently there has been an order for a LNG vessel being constructed for 250,000m to possible 260,000m.⁶⁴ ABS will Class 5 out of the 20 under contract of the larger, 200,000m to 217,000m, being constructed. However, these vessels need to go through the various processes of designing, testing and modeling in order to meet the criteria as set by ABS before ABS will Certify the vessel. The largest ship that ABS is in the process of Classifying is 250,000m. ABS is currently in the process of doing tests on the 250,000m vessel which is in the preliminary design process.⁶⁵ Once again the vessel as proposed by Broadwater is 100,000m larger than any LNG vessel under considerations by ABS and over twice the size of any LNG vessel currently operating

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The Task force makes the following preliminary findings and recommendations:

1. Broadwater completes the full process as directed by ABS;
2. Broadwater devises a method and manner for inspections by ABS on a routine manner, which is acceptable by ABS and filed with FERC;
3. No supply tanker shall be used to refuel the FSRU unless that supply tanker has in fact been Certified by ABS and which Certification is kept up to date;
4. If the FSRU or any one of the supply tankers fails to retain the ABS Certification then the owners and/or applicant must immediately notify the US Coast Guard, FERC, US Department of Transportation, Attorneys General of the State of New York and the State of Connecticut.
5. All modeling and testing should be completed, reviewed and analyzed by ABS, US Coast Guard, Homeland Security before the Broadwater application proceeds through the FERC process. If it is determined that the size of the LNG tanker and the size of the FSRU either independently or collectively cannot be constructed to achieve the purpose for which it is intended then the efforts of various agencies, experts and other with interest in this project should be placed in a position to spend money and time to argue against a project which cannot ever be constructed to meet the mandatory safety requirements.
6. If the siting application filed by Broadwater fails to have the required testing and modeling as required by FERC and ABS the application should be deemed incomplete and the applicant should re-file after the applicant has performed the required analysis to ensure that the project has merit.

After the Task Force has reviewed the Broadwater's siting application which should contain the testing, modeling and analysis performed by Broadwater and then review the various comments from the different agencies, the Task Force will be better able to form an opinion on the safety issues of the LNG and FSRU.

LONG ISLAND SOUND ISSUES:

The Task Force had a number of concerns including the impact of the Broadwater project may have on the Long Island Sound (LIS). These issues include: the effect upon fishing both recreational and commercial; boating both recreational and commercial, agriculture, New Haven Harbor; general environmental concerns.

LONG ISLAND SOUND IN GENERAL:

LIS is an estuary approximately 110 miles long (east to west), and 21 miles across at its widest point. The LIS is a place where salt water from the ocean mixes with fresh water from rivers and the land. The LIS is unique in that it has two connections to the sea; one connection is at the Race to the east and other is at the East River to the West.

The LIS also has several major rivers that feed into the LIS, mostly from the Connecticut side.

In 1985, Congress allocated funds for the U.S. Environmental Protection Agency (EPA) to research, monitor, and assess the water quality of Long Island Sound. In 1987, following amendments to the Clean Water Act, the National Estuary Program was established and Long Island Sound was identified as an Estuary of National Significance, and the LIS became a part of the National Estuary Program in March 1988.

The Sound provides feeding, breeding, nesting and nursery areas for a diversity of plant and animal life, and contributes an estimated \$5.5 billion per year⁶⁶ to the regional economy from boating, commercial and sport fishing, swimming, and sight-seeing. More than 8 million people live in the LIS watershed, and the associated development has increased some types of pollution, altered land surfaces, reduced open spaces, and restricted access to the LIS.

The resources of LIS are shared by people throughout New England and New York and each have a stake in the LIS. The entire coastline of Connecticut and part of New York borders on the LIS. Eighty percent of the fresh water entering the Sound comes from rivers that drain from states as far north as Massachusetts, New Hampshire and Vermont. On the Connecticut side it is these rivers that enter the LIS which makes the Connecticut side of the Sound rich with oysters.

SUMMARY OF LONG ISLAND SOUND FACTS AND FIGURES⁶⁷

- Area of LIS: 1320 square miles
- Drainage Basin or Watershed: 16,820 square miles
- Average Depth: 63 feet (60-120 feet)
- Volume: 18 trillion gallons
- Coastline: 600 miles
- Salinity Ranges: 23 parts per thousand in the western end to 35 parts per thousand at the eastern end
- Source of Fresh Water: 90% of the freshwater comes from three major Connecticut Rivers - the Thames, Housatonic, and Connecticut
- Temperature: 32°F in winter and 73°F in summer
- Tides: two high and two low each day with the greatest tides in the west
- Population Living within 50 miles: 20 million people
- Estimated Value to the Local Economy: \$5.5 billion per year
- Fish Populations: more than 120 species of finfish, including 21 tropical species that stray here seasonally; at least 50 species spawn in the Sound

⁶⁶ The figure of \$5.5 billion is based upon 1990 study Long Island Sound study by Dr. Marilyn A. Altobello, Associate Professor Dept. of Agriculture and Resources Economic, University Of Connecticut, Task Force Meeting 12-7-05

⁶⁷ United States Environmental Protection Agency web site www.epa.gov/region01/eco/lis/facts.html

The Federal government as well as state and local governments have spent a considerable amount of money and passed a significant amount of legislation to protect the LIS. There have been investments in water pollution control programs at all levels of government which have led to measurable improvements in the water quality of LIS. Obvious sources of pollution became subject to regulations and were controlled through permit programs. Tidal wetlands were protected, sewage treatment plants improved, and industrial discharges controlled.⁶⁸ However, to fully restore the health of the Sound, a cooperative effort focusing on the overall ecosystem was and is needed. As a result, EPA, New York, and Connecticut formed the Long Island Sound Study (LISS) in 1985, a bi-state partnership consisting of federal and state agencies, user groups, concerned organizations, and individuals dedicated to restoring and protecting the Sound.

In 1994, the LISS completed a Comprehensive Conservation and Management Plan that identified seven issues: (1) low dissolved oxygen (hypoxia), (2) toxic contamination, (3) pathogen contamination, (4) floatable debris, (5) living resources and habitat management, (6) land use and development, and (7) public involvement and education.⁶⁹ With every legislative act and initiative, money and resources are expended to improve and/or protect the quality of the LIS. The LISS partners have made significant strides to restore and protect Long Island Sound, giving priority to hypoxia, habitat restoration, public involvement and education, and water quality monitoring.

A few the examples of the types of programs and legislation that was passed to protect and improve the water quality of the LIS is as follows:

1. Nitrogen (Hypoxia) Management: In 1998, the LISS adopted a 58.5 percent reduction target for nitrogen loads from human sources to the Sound by 2014, with interim five- and ten-year targets to assure steady progress. In 2001, the EPA approved Connecticut's and New York's plan, called a Total Maximum Daily Load (TMDL), for achieving the 58.5 percent nitrogen reduction. As of 2002, upgrades to sewage treatment plants have decreased nitrogen loads to the Sound by 28 percent compared to the peak year of 1994.⁷⁰

2. Habitat Restoration: Since 1993, more than 465 acres of tidal wetland habitat have been restored in Connecticut. Since 1996, New York has restored 65 acres of tidal wetlands.⁷¹ As of 2002, 42.9 miles of river migratory corridors have been restored for anadromous fish passage by installing fish ladders and removing dams.⁷²

3. Water Quality Monitoring: A number of organizations and citizens monitor water quality to identify how Long Island Sound responds to management initiatives such

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as nitrogen reduction. Water samples are collected and tested for dissolved oxygen, salinity, temperature, chlorophyll, and other parameters.⁷³

As a result of the efforts of the Federal Government, State Government and local Government in saving, protecting and enhancing the LIS, the Task Force finds that there is a commitment in terms of money and government public policy, at all levels, to protect the LIS. The reasons for the above commitment seem clear; the LIS adds to the quality of life in our area; it is a precious natural resource and the LIS has a tremendous impact on our economy.

THE DEPARTMENT OF ENVIRONMENTAL PROTECTION TRAWL STUDY⁷⁴

The Connecticut Department Of Environment (DEP) through the Marine Fisheries Division has the responsibility of such resources as finfish, lobster, crabs, squid and horseshoe crabs. Said department is also responsible for the overseeing of sport fishing, lobster pot, hook & line, fish pots and other assorted fishing techniques. The agency monitors trends of finfish and invertebrates, by examining the abundance, distributions, size composition, age, growth and maturity, habitat preferences, seasonal movements, and much more. In order to accomplish the above DEP established the Long Island Sound Trawl Survey which began back in 1984. Said survey is funded by CTDEP and Federal Aid In Sport Fish Restoration. The LIS Trawl Survey lowers nets into the water to capture the various species and visually make the inspections. Attached hereto as appendix are the actual locations of the trawl net samples from 1995-2004. There were a total of 2000 tows from 1995-2004.

The LIS Trawl Survey is critical to analyze the fishing industry and in the protection of the LIS. Over 200 samples (tows) are taken each year. 200,000 fish, lobster and squid are handled each year. The survey observes about 60 finfish species each year and total of 96 fish species identified since 1984. From all of this information trends are developed to understand the abundance of certain fin fish or species, spawning season, distribution of the different fish species throughout the sound. This information is critical to the commercial fishing industry and to the protection of the LIS. The trawl survey provides the necessary and critical feedback in order to evaluate the fish industry.

A map of the Trawl Survey indicates that a significant amount of trawls have occurred in the area that the FSRU is expected to be located as well as in the area where the anticipated security zone would be located. It is clear that the FSRU, the security zone and the connection pipeline would interfere with the LIS Trawl Survey. Any substantial interference with the LIS Trawl Survey and its ability to provide an accurate accounting and feedback system to this important national estuary cannot be taken lightly.

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⁷⁴ Department of Environmental Protection, Brian Emerick, Mark Johnson, Eleanor Mariani, David Blatt; Task Force Meeting 11-16-05

The Task Force will review the siting application to determine the exact location of the FSRU and the security zone, however the Task Force may take the position the Trawl Survey should not be restricted in any manner and should be allowed the full access to all areas of the LIS including those areas deemed a security zone as a result of Broadwater. The failure of FERC to provide an exemption for the Trawl Survey may result in a significant and direct negative effect upon the LIS recreationally, commercially and economically.

MARINE RECREATIONAL FISHING IN CONNECTICUT⁷⁵

The LIS fishing activities has a huge positive economic impact on Connecticut and New York. There are over 335,000 marine anglers a year from Connecticut and New York. Together these recreational anglers make 1.5 million fishing trips a year and catch 6.8 million fish a year.⁷⁶ There are notable areas for recreational fishing in Connecticut waters. Most notably are the vital fishing areas around the Race. There are large fishing areas in the Race area on the New York side but there are also other areas near the Race on the Connecticut side that are enjoyed by large numbers of both recreational and commercial anglers. Depending upon the exact track of the LNG supply tankers, and the yet to be determined security zone, these fishing areas could be substantially negatively impacted by the Broadwater project. As the final plans are reviewed in detail and the security zones are determined by the Coast Guard, the Task Force may be able to do a more complete final analysis as to the true nature and extent of any potential impacts caused by the LNG tankers on the recreational and commercial fishing areas.

COMMERCIAL FISHING⁷⁷

Log books are kept by the commercial fishing industry help to track the commercial fishing results. Currently there are 575 licenses issued to 474 fishermen. There are approximately 20 species of fish commonly landed and from 2001 to 2004 there was about 500,000 lbs of finfish landed per year. Further there was about 930,000 lbs of lobster landed per year during the same periods of time. The principal commercial fishing industry in the LIS is lobster pots. In 1980 licensed commercial fisherman reached an ultimo high of 783 licenses and in 2004 only 309 commercial fishing licenses were issued. In 1999 the high of 250,000 pots were set and over 4 million pots were hauled. The LIS Trawl Survey demonstrates the areas of high density of commercial lobster pots in the LIS.⁷⁸ The Task Force believes it is worth noting that the preliminarily location of the FSRU is in an area indicated as a high density of commercial lobster pots. In addition, there is also a high level of lobster pots in the area along the route of the lateral projected to be constructed between the FSRU and the Iroquois Gas Transmission Line. Also it is important to note, according to the Trawl Survey, along the original

⁷⁶ Mark Johnson, Marine Fisheries Resources, DEP presentation, Task Force Meeting 11-16-05

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Iroquois gas line from Stratford, Connecticut to New York there is no active lobster fishing taking place. Therefore more than likely there would be no active lobster fishing activities taking place along the proposed lateral connection to the Iroquois Gas Transmission Line that is being proposed by Broadwater. As a result not only will the FSRU have a potential impact on the commercial lobster fishing activities but also the lateral may have an impact on the commercial lobster industry

Once again the Task Force needs to further examine this issue once all the Broadwater plans and activities have been filed as well as the establishment of the various security zones. However, it seems clear to the Task Force that in the entire general area where Broadwater proposes to place this project, it may be difficult for the project not to have a negative impact on the lobster fishing activities.

As most people are aware the commercial lobster industry has been negatively impacted as a result of a LIS lobster die off several years ago. From 1997 until 2003 there has been a steady decline in the number of lobsters landed in Connecticut and in New York. Although it has been stated that the lobsters are making a comeback this industry cannot afford another potential negative interference in their business activities. The lobster die off has already ended lobster fishing for many of our Connecticut residents. Another adverse effect upon the lobster population will most certainly be devastating to the industry. Further, based upon the LIS Trawl survey the exact area were Broadwater preliminarily proposes to place the FSRU has been determined to be a "Good" distribution of lobsters⁷⁹. In the area of the proposed pipeline interconnection with the Iroquois system, the abundance of lobsters is high based on the Trawl Survey and is a very active lobster fishing area.⁸⁰

As a result, it seems to the Task Force that the FSRU and the connection pipeline will have a direct negative impact upon the lobster fishing area. The effect of the impact of the lobster industry needs to be examined more fully by the Task Force at the time the siting application is fully reviewed.

RECREATIONAL AND COMMERCIAL BOATING⁸¹

Boating on LIS consist of recreational and commercial. Commercial traffic is broken down into local and foreign flagged vessels. There are about 38,000 Connecticut boaters and 35,000 to 40,000 transient boaters each year in the LIS. On the commercial side there are a variety of commercial activities. The Cross Sound Ferry which travels from Connecticut to New York transits the Race about 52 to 60 times a day. In addition there are also 1,400 tugs and barges that arrive each year (mostly oil) and make 2000 to 4000 transits through the LIS in 2004. Finally there were 550 foreign flag vessels that arrived at port and which made 1,100 transient trips in 2004. as mentioned in this report earlier, traffic congestion in the LIS is an important issue.

⁷⁹ Map entitled "American Lobster Distribution Based on the DEP Trawl Survey". DEP data presented at the Task Force Meeting 11-16-05

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⁸¹ Eleanor Mariani, Marine Fisheries Resources, DEP, Task Force Meeting 11-16-05

Most of the recreational activity consists of day trips or weekend trips. The boating season in the Northeast is generally limited. Those who boat 20 to 50 days a year are about 50%, while those who boat 50 or more days a year are about 34%. Also, almost 84% of the recreational boaters travel less than 30 miles. As a result recreational boaters in LIS are usually day trips where the boater's do not travel very far from their original location.

It is estimated that the value of LIS is about \$5.5 billion industry. That figure is based upon recreational boating, sport fishing, swimming, intrinsic value, and commercial fishing. The largest percent of that \$5.5 billion is derived from boating. As a result any potential negative impact on the boating industry needs to be very carefully examined by analyzed. An important factor in analyzing the Broadwater impact on boating is to examine those factors which would cause people to be less likely to visit the LIS.

Based upon a survey⁸² the top three items that would interfere with a boater from boating in Connecticut would be as follows:

1. Swimming water quality (65%)
2. Congested waterways (63%)
3. Lack of facilities (53%)

Those surveyed also sent additional comments regarding the LIS. Some of those comments were as follows: that there was not enough law enforcement (29%), facilities needs to be addressed (17%) and access/congestion (16%).

As a result, once again, when Broadwater files its siting application the Task Force needs to perform a thorough review to examine those issues which would negatively affect to the use of the LIS. An example of the kinds of issues the Task force should examine would be if the Coast Guard was spending their budget dollars and other resources on the security of Broadwater would that interrupt or hinder the Coast Guards ability to enhance their law enforcement efforts on the LIS. (This issue is discussed later in this report). Also, determine if the Broadwater project including all aspects of the project ie: the LNG supply boats, the various security zones and the connection pipeline to the Iroquois Gas transmission Line interferes with any of the LIS facilities and if so to what extent.⁸³ And finally would the project add additional congestion of the LIS and/or its waterways and result in limiting the access of the LIS in certain areas of LIS and would that limitation result in people not using the LIS.

ECONOMIC IMPORTANCE OF LONG ISLAND SOUND'S WATER QUALITY⁸⁴ (The dollar values in this portion of the report are 1990 dollar values)

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⁸⁴ Dr. Marilyn A. Altobello, Associate Professor Dept. Of Agriculture and Resources Economics, University Of Connecticut, Task Force Meeting 12-7-05

Commercial fin fishing and shellfish commercially harvested from LIS were estimated to be about \$53 million in 1990. The economic multiplier as applied to the \$53 million yielded an additional \$95.4 million; therefore there is a total figure of \$148.4 million for commercial fin fishing and shell fishing from LIS in 1990.

On the recreational side of the economic scale the dollar values were estimated to be \$303.17 million for 1990. There are direct expenditures associated with the recreational use of the LIS such as transportation, fishing equipment, food lodging etc. which was estimated to be about \$2.2 Billion. Using a multiplier to the direct expenditure number above, an additional \$2.8 Billion is computed. Therefore there is a total of \$5,230.19 million of economic recreational value as a direct result of the LIS.

In addition the sound has an intrinsic value.⁸⁵ The intrinsic value is not directly related to current direct uses of the resources of the LIS, but is value the LIS adds to items like homes, businesses or to the Town itself. These are values which are attributable simply due to the proximity of the LIS.⁸⁶ This intrinsic value for LIS is estimated to be \$151.59 million for 1990.

In addition to the above there is a value assigned to costal wetlands. The value of costal wetlands is estimated to be \$93.75 million for 1990.

As a result the total value of the LIS, economically to Connecticut, is slightly over the \$5.5 Billion for 1990.⁸⁷

The Task Force will need to focus on the siting application and evaluate the impact, if any, of the Broadwater project affect upon the above figures. Once the exact location of the FSRU is determined, the track of the LNG is mapped, the track of the connection pipeline is mapped and the various security zones are disclosed, the full impact to the LIS economically can evaluated.

WATER QUALITY:

The most valuable use of LIS is recreation which is highly dependant on the water quality of the LIS.⁸⁸ The preliminary plans filed by Broadwater did not given enough information to understand how the water which is discharged for the FRSU or the LNG will be handled. The size of the FSRU results in about 5 acres of surface area where rain water and perhaps even sea water will be running off of the FSRU and into the sound. The Task Force needs to better understand the impact of this runoff in terms of

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⁸⁷ The Task Force found that though this number is from 1990 it is a conservative number based upon the increase recreational use i.e., jet skis, kayaks, and other new types of recreational crafts and the significant increase in population along the LIS.

⁸⁸Eleanor Mariani, Marine Fisheries Resources, DEP testimony at the Task Force Meeting 11-16-05

how it is going to be treated. For example the Task Force will need to examine the collection method and discharge method of the runoff to determine if there is an oil/water separator or are there any hazardous materials kept on the deck of the FSRU. The Task Force will need to review such information in order to appropriately comment on the issues of water quality.

AQUACULTURE:

Connecticut has an important shell fish industry. Since 1880 natural shell fish beds have provided a lively economy in Connecticut. At first glance the project does not seem to be affecting these shell fish beds.⁸⁹ However there are concerns. The concerns are the temperature of the gas in the pipeline from the FSRU down to the connection pipeline and then the temperature of the gas in connecting the pipeline to the Iroquois Transmission System. The temperature differential between the outside of the pipeline and the temperature of the LIS may have an impact.⁹⁰ If the siting application requires the gas to be heated as a result of the regasification process then a further analysis must be done to determine if the heated pipelines would have an adverse effect upon the shell fish. The Task Force will investigate this matter more fully after it reviews the siting application.

LIS BASIN:⁹¹

The sediment on the bottom of the LIS vary due to erosion and transportation of sediment by other factors. These sedimentation differences occur primarily as a result of the currents in the LIS. For example erosion or nondeposition is found in the most eastern portion of the LIS basin. As one moves west the various stages transform to the fine-grade deposition. The above is a general statement. Equally true in the areas with the strongest current action the result is the LIS basin with different surface sediments. For example, in the most eastern end of the LIS the basin is gravel or bedrock. As the LIS basin extends westerly the basin changes as follows: gravelly then sand, then silty sand, then sand,-silt-clay, then sandy silt, clayey, silt or silt and then pockets of silty clay. There are exceptions to this general flow and that is most notably in the area of the Stratford shoals where the currents are faster than in other areas.

The Broadwater project preliminarily seems to place the FSRU in the fine-grained deposition area. The surface sediments are sand silt, clayey silt, silt area. However the final location will depend upon the final plans. The gas line that proposes to intersect the Iroquois Gas Transmission Line will traverse a number of different sediment areas and the details of which must be fully examined by The Task Force once the exact course of the connection pipeline is determined. However it seems the lateral pipeline will cross

⁸⁹ Commissioner Philip Prelli, Dept. Of Agriculture, Task Force Meeting 11-04 -05

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⁹¹ Brian Emerick, Marine Fisheries Resources, DEP data presented, Task Force Meeting 11-16-05

the Stratford shoals which are an area which may require blasting since this area is either bedrock or contains large tight gravel.⁹²

Once again the Task Force will examine the siting application to determine if Broadwater will use a blasting method for the installation of the connection pipeline, or if Broadwater has decided upon further analysis that blasting is not required.

IMPACT ON NEW HAVEN HARBOR⁹³

There are eight active terminals in the New Haven Harbor. These terminals are extremely busy and primarily import and export a variety of raw products. New Haven ports average 20 to 24 ships per day. The terminals carry products such as liquid products and petroleum products. In addition, the harbor also imports asphalt, cement, kerosene and other assorted products. The New Haven Harbor provides 90% of all shipped petroleum in the State of Connecticut. It is the busiest harbor for heating oil and dry cargo in this area.

In addition, New Haven has a vital economic and national security interest. Two of the terminals are involved with the US Government strategic petroleum reserves. These reserves are critical to the stability of our national defense. In the event of a critical fuel shortage it is these reserves that will be utilized to supplement the existing fuel. In addition to the reserves the Buckeye pipeline runs through Connecticut and into the New Haven Harbor area. The Buckeye pipeline is critical to this area as it supplies jet fuel for Bradley International Airport, fuel for the Massachusetts National Guard Reserve and it also moves fuel between New Haven and Westover Mass.

New Haven Harbor is also our deepest harbor in the area. Other local harbors around cannot provide the same access for vessels because of depth issues. The depth at Bridgeport and Norwalk harbors may not be deep enough now to handle a variety of vessel traffic and unless dredging occurs these harbors will become extremely shallow in the near future and may not be able to handle existing vessel traffic. As a result any adverse impact to the essential services at the New Haven Terminal will have a long reaching effect upon a variety of different areas.

There are two possible major concerns associated with Broadwater's impact on the New Haven Harbor. One is a possible blockage of access in the LIS and interruption to the traffic accessing the Harbor. The impact caused by increased traffic as a result of waiting for the LNG to make its way through the Race or making its way to the FSRU could result in delaying the vessel from unloading ships. The vessels in New Haven Harbor need to move as quickly as possible to ensure the vessels are not needlessly delayed, and money is therefore not lost. If there are perceived delays of moving vessel traffic in and out of the New Haven Harbor, the impact could result in cargo vessels deciding to go other locations, such as Delaware. There is no real difference to a vessel leaving from the other side of the Atlantic to decide to go to Delaware instead of

⁹² The preliminary application by Broadwater states that there may be some blasting and further analysis must be done.

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Connecticut. The effect upon the shipping industry in the New Haven Harbor, as a result of delays caused by the LNG supply tanker two to three times a week is a very real concern for the New Haven Harbor area.

Once again until the security zone is established by the Coast Guard and the timing of the unloading by the LNG supply vessels are established the analysis of the full impact to the New Haven Harbor cannot be determined. The Task Force will continue to investigate this matter and determine the impact, if any, to the New Haven Harbor. Certainly this is a very important issue and the Task Force will pursue further investigation.

LAND BASE UNIT:

The Broadwater project is anticipated to have a land base support center.⁹⁴ In fact in order to enhance the safety and security aspect of this project, a land base support center is critical. FERC itself stated that in order for Broadwater to receive approval from FERC this land based support center must be part of the application and an EIS must be a part of the application.⁹⁵

It is important to note that the preliminary application filed by Broadwater failed to include the land base support center. It is anticipated that the siting application will have the land base support center as part of that application. Once the details of the center are known the Task Force, in its final report, will be able to comment further on the impact and effect the center may have on the application.

PUBLIC COSTS:

One of the arguments for the need of LNG is that it has the potential to reduce natural gas prices in the region which it benefits. However, there are various security and safety costs associated with the LNG which must be factored in, to determine if the LNG does in fact reduce the cost of natural gas. The Task Force investigation has shown that in other areas of the nation the costs associated with these facilities are substantial. For example at the Everett terminal in Boston Massachusetts the Coast Guard, in 2003 dollars, spent about \$40,000 to \$50,000 to secure one shipment of a LNG tanker. In addition the Cities of Boston and Chelsea it is estimate that together they spend approximately \$37,500.⁹⁶ Therefore, for one shipment of LNG cost about \$80,000⁹⁷ of taxpayer's money being utilized for a private enterprise. If one were to use the \$80,000 figure as an example in the Broadwater issue and assuming a shipment of only twice a week⁹⁸ the security and safety cost would be \$8,320,000 a year (these figures are in 2003

⁹⁴ Broadwater security consultants: Giuliani Group, Task Force Meeting 12-07-05

⁹⁵ *Infra*, Richard R. Hoffmann

Federal Energy Commission, Task Force Meeting 12-07-05

⁹⁶ *Infra*, Congress Report p. 17

⁹⁷ *Supra*

⁹⁸ Broadwater in their preliminary filing stated deliveries would be two to three times a week.

dollar values). This does not include other costs of equipment such as fire suppression systems and administrative cost such as local safety plans.

The Task Force needs more information to evaluate the costs both nationally and locally associated with the Broadwater project. However, until the final route of the LNG supply tankers are known, the security and safety criteria are disclosed, the costs cannot be determined at this time by the Task Force.

In addition to the “out of pocket” costs for security and safety, the LNG facility will also have an impact on the Coast Guard’s budget. The Coast Guard does not have a line item in the budget for LNG safety and security issues. The money for the safety and security must come from the Coast Guard’s general maritime security account.⁹⁹ These are the same monies allocated to the Coast Guard for the general protection of the public for such obligations as boating safety, search and rescue, drug enforcement and other security missions.¹⁰⁰ The full determination of the effect of the impact on the Coast Guard budget should be analyzed both in terms of dollars and in term of potential cut-backs by the Coast Guard as result of not having enough money to perform current obligations. The financial impact to this Coast Guard should be analyzed as it maybe a direct and substantial impact on the LIS.

The Task Force will do the best it can to analyze how the cost effect of the Broadwater project may have on the Coast Guard’s resources once a full understanding of the safety and security issues are known. To the extent the Broadwater project does hamper the Coast Guard budget, then the Task Force may recommend that Broadwater should reimburse the Coast guard for any additional expenses directly related to the additional security and/or safety cost associated with the Broadwater project.

In addition to the financial pressure on the Coast Guard’s budget, the Broadwater project may also have an impact on local government resources. Local government may be required to perform certain types of security and/or public services associated with the Broadwater project. The Task Force will examine if there could be additional expenses to local government as a result of comments from various other agencies including the Coast Guard. To the extent that there are additional costs to local government, the Task Force may advocate that these expenses should be born by Broadwater.

ALTERNATIVES:

As part of the FERC application Broadwater must examine alternatives to the Broadwater project. The Task Force also examined various alternatives to the Broadwater project. The alternatives as examined by the Task Force are not all the possible alternatives and the Task Force is still in the process of examining other alternatives to the Broadwater project.

⁹⁹ Infra Congress report p18

¹⁰⁰ Supra

In comparing possible alternatives a process develops that aids in understanding if the Broadwater project is the best possible answer to the natural gas issues facing Connecticut and the region. In analyzing the alternative, one approach is examining the drawbacks of the Broadwater project to help to determine if there were other alternatives that provide fewer drawbacks.

It is important to understand that there seem to be some obvious drawbacks to the Broadwater project. First, as with all LNG facility, Broadwater is reliant on a foreign source of fuel. LNG is exported from places like Algeria, Australia, Brunei, Indonesia, Libya, Malaysia, Nigeria, Oman, Qatar, United Arab Emirates and Trinidad and Tobago. In the 1970's as a result of a price dispute with Algeria the LNG markets in US quickly came to an end. Therefore, LNG can be subject to the same complications and the price instability as we currently faced with oil.

Another possible drawback to the Broadwater project is the considerable amount of time that it will take for Broadwater to start delivering gas to our area. The testimony at the Task Force demonstrated that Broadwater probably couldn't be ready by 2010 to deliver natural gas. First, assuming that the FERC process will be completed by March 2007, as requested by Broadwater, and further assuming no appeals, then the first step after approval is designing of the Broadwater FRSU and LNG vessel. The design process would take a considerable amount of time, mostly because a vessel, as described by Broadwater, has not ever been designed or tested. In order to get approval, Broadwater would have to perform the required modeling and testing for review by ABS. According to ABS, it would take about 2.5 years or better to have the design plans approved. ABS stated that it takes roughly nine months to build a normal size LNG¹⁰¹ and that it would take about 1 year to 1,5 years to build the larger FSRU.¹⁰² ABS also testified that currently it is a ship builders market and the wait is about 2 years from the time of ordering a ship until the time it is delivered.

Therefore based upon the above, without any delays along the application process or lapses of time between each stage of the application, the earliest a LNG and FSRU vessel could be ready for delivery would be 2012. Therefore, the Broadwater project might take a considerable amount of time to start making a difference in our area.

The Task Force did hear testimony of an alternative solution to receiving LNG in the Northeast which would also benefit Connecticut. One report opined that there is a sufficient gas pipeline infrastructure in the Northeast region. If one examines the pipeline structure in this region and 61% to 70% of the pipeline is in use on an average basis.¹⁰³ Therefore most of year there is a great deal of unused pipeline capacity in Connecticut's region. The gas pipeline reaches capacity mostly in the cold winter months. Sometimes the capacity can be reached in the hot summer days as a result of the high electrical

¹⁰¹ *Infra*, James Gaughan

¹⁰² James Gaughan, ABS. At Task Force Meeting on 1-24-06, stated that if a ship was ordered at the end of January 2006 it would be ready January 2008.

¹⁰³ Dr. Ezra Hausman, Senior Associate Synapse Energy Economics Inc. Boston, Task Force Meeting 1-10-06

demand. Therefore the real problem is the delivery of gas during peak times. Since the existing pipelines are not being used all of the time there is no economic sense in placing capital into building more pipelines which would also not enjoy the use of its full capacity most of the year. During peak periods the gas pipeline system becomes constrained and the difficulty is moving gas from upstream to downstream where the gas is needed. However, if natural gas is introduced at the downstream markets, then more natural gas would be available to the upstream markets.¹⁰⁴ Essentially by reducing the demand downstream in the pipeline, more gas is available further upstream. However, if you import gas supply at the downstream end of the pipeline, new sources of gas energy must be introduced. The Northeast has a very high gas market and therefore it an attractive area for new gas opportunities. And further the Northeast is the best place to deliver gas because it is at the end of the pipeline system. It makes sense to inject supplies in New England where there is a market need for the gas.¹⁰⁵

The Maritime & Northeast Pipeline (Maritime Line), which will receives its supply from an LNG regasification facility, is expected to go on line in 2008. The LNG facility will receive gas from LNG tankers originating from foreign terminals. This pipeline can deliver gas for local needs to the Boston area. As such it will then free up the gas supply upstream and allow the same to be utilized in Connecticut. Essentially by reducing the need for gas supplies downstream in the Boston market Connecticut will be able to keep more of the gas in the pipeline that runs through Connecticut.

The Maritime Line is nearing completion to install a major natural gas pipeline that extends from Canada Maritimes into Massachusetts. Several phases have already been approved and constructed. It is expected to place 1.5 bcf per day of natural gas into the Northeast. The gas is supplied by an LNG facility already in the Maritime Provinces in Canada. This amount of natural gas that the pipeline would deliver to the northeast is equal to the projected deficit in 2025.

The Maritime Line project presents several benefits. First most of the infrastructure already exists; second no new LNG facilities have to be built; third the facility provides for direct infusion of natural gas to the northeast and fourth there seems to be almost no opposition to the pipeline from anyone.

In addition to the above alternative the Task Force also discussed the issue of supply and demand. There are two kinds of responses to peak demand: one on the supply side and one on the demand side. Cost effective plans that Connecticut has already implemented will be beneficial on the supply side and on the demand side. In addition an answer to peak shortfall is to create more storage capacity in Connecticut. The Yankee Gas LNG storage facility in Waterbury is a good example of the effort to achieve a more stable supply of natural gas. Waterbury storage facility can hold about 20 days of supply of natural gas which is about 1.2bcf of gas. This supply is generally used for demand times. This method is an appropriate method to manage peak demand.

¹⁰⁴ Supra

¹⁰⁵ Supra

On the demand side, reducing or managing demand for electricity or natural gas is important. Because natural gas is the marginal fuel to produce electricity, the reduction of electricity can reduce gas demand. The State of Connecticut has begun its commitment to examine renewable energy to reduce gas demand. In addition, the state's policy of conserving energy coupled with its energy conservation programs collectively will continue to be effective to decrease the need for energy.

In addition, the above IGTS will be delivering an additional 100 million cf per day to New York City.¹⁰⁶ (See discussion below) This additional and alternative source of natural gas coupled with all of the above may be an acceptable alternative to the Broadwater project. Certainly this initial investigation by the Task Force needs to continue and needs to be more focused. The Task Force, upon its final report, will more fully elaborate on these and other possible alternatives.

BROADWATER PIPELINE LACKS AN IDENTIFIABLE MARKET:

The Task Force is very concerned over the delivery of LNG to a designated market. The Task Force's questions and concern result from the preliminary application filed by Broadwater. Broadwater has not defined the market to be captured or the customers which Broadwater will be supplying. In fact Broadwater has asked that those portions of their application be specifically waived by FERC. As part of the FERC approval process the applicant must demonstrate a market that would require that energy source. It is this unidentifiable market that raises the concerns of the Task Force. The Task Force concerns are further heightened by a letter by the Iroquois Gas Transmission System's (IGTS) letter dated October 7, 2005. In that letter sent to FERC, IGTS questions what markets Broadwater is planning on servicing. IGTS specifically asks "where the LNG would be transported on a firm basis and whether LNG is going to be delivered to markets that are currently served by Iroquois or to incremental markets".¹⁰⁷ In fact IGTS state "the most significant issue of concern to Iroquois at this time is the lack of information regarding the location of anticipated deliveries of the LNG to be supplied to Broadwater. Other than the Notice of Intent's reference to Broadwater's anticipated markets being located in New York and Connecticut, there is no further information about where Iroquois may be expected to deliver Broadwater LNG on its system. Nor is there any indication as to whether the deliveries would represent incremental load for the Iroquois system. In this respect, to date Iroquois has not been contracted to supply any firm deliveries of the LNG to be delivered by Broadwater, and Iroquois is not aware that any of its existing customers have contracted for LNG. If Broadwater LNG is to be delivered on a firm basis, it is likely that additional facilities to increase the firm capacity on Iroquois will be required".¹⁰⁸

¹⁰⁶ Iroquois Gas Transmission System, website.

¹⁰⁷ Iroquois Gas Transmission System letter to FERC dated October 7, 2005.

¹⁰⁸ Supra

As a result there is no identifiable end user of the LNG which Broadwater proposes to service. Which raises the question by the Task Force as to what is the purpose of the Broadwater application if there is (are) no customer(s) to serve?

IGTS also points out that certainly the pipeline system does not connect to any storage supply facilities and therefore the LNG can't be stored on any land base facilities.¹⁰⁹ Furthermore, as pointed out in IGTS letter "Iroquois cannot assess the impact to its pipeline or to its customers of an interruption in the delivery of gas from the FSRU since Broadwater has made no firm transportation arrangements and has not proposed a backup gas supply plan in the event that such interruption occurs. In this regard, Iroquois has no means of assessing Broadwater's statement, in its Environmental Report 11, that '[i]n the event of an unscheduled shutdown, impacts on downstream customers should be minor and temporary.' Report at 11-3"¹¹⁰ Therefore Broadwater's failure to identify a source for the LNG raise concerns to this Task Force, not only as to the need for this facility at this location, but the entire IGTS connection. This area of the application needs further examination. The Task Force hopes that Broadwater in its siting application does in fact specify the markets and the actual amount of LNG needed for these proposed customers in order that adequate connection plans and interruption plans can be created by IGTS and reviewed by FERC. Absent any showing of a customer base leaves the Task Force wondering if the Broadwater project is in fact a need at this location or if it is speculation by a corporation trying to get into the evolving energy market in the northeast.

The above coupled with the capacity issue of the IGTS capacity yields a further concern by the Task Force. Iroquois has designed and constructed its pipeline from Connecticut shore line to its Northport Sales Meter Station to allow, in the future, for pressure to exceed the current permitted pressure and therefore increase the amount of gas that can run through the pipeline to a Maximum Allowable Operating Pressure (MAOP) of 1440 psi.¹¹¹ Obviously additional FERC and other approvals will have to be obtained before the MAOP of the pipeline can be achieved. The Broadwater project has designed its pipeline for the MAOP, with no application to upgrade to the Iroquois system.¹¹² The Task Force in investigating this matter has come to realize that one way of achieving Broadwater's plan is divert at least 25% of the Iroquois gas that is currently flowing through the IGTS and into New York, to stay in Connecticut. Obviously this concept would have to be by way of an agreement between IGTS and Broadwater, which agreement is not referenced in any filings and/or letters. The Task Force will need to investigate this issue further to determine if any agreement surfaces between Broadwater and IGTS. Absent such an agreement, the Broadwater project may not be a viable project if the IGTS cannot be used to move gas from the FSRU.

¹⁰⁹ Supra

¹¹⁰ Supra

¹¹¹ Supra

¹¹² Supra

In addition to the above, the Task Force also has recently learned that IGTS has made an application to FERC to add a compressor station in Brookfield Connecticut. This application to FERC is part of a series of applications involving modifications to the IGTS pipeline.¹¹³ The purpose of this application is to reduce costs for the Connecticut and New York region.¹¹⁴ The application by IGTS will add 100 million cubic feet of natural gas per day into New York City. The IGTS interconnects with the Algonquin Gas Transmission in Brookfield. This compression system would allow more gas to flow through the IGTS to points south. In fact IGTS stated in its application to FERC that one of the purposes of the compressor station in Brookfield is to deliver gas to New York. In fact as reported by the Northeast Gas Association on December 2005, the specific purpose of the IGTS proposal is to ease the natural gas problem in New York. "Iroquois is working with Consolidated Edison Company of New York Inc., Algonquin Gas Transmission System, LLC. and Millennium Gas Transmission System to bring an additional 100,000 mcf per day into New York City. The natural gas volumes for this project will originate in Canada. From the Canadian border, Millennium will transport the gas to a new interconnection with the Algonquin who will in turn, deliver gas to Iroquois at its connecting station at Brookfield, Connecticut. Iroquois will then transport the gas to Con Edison at its interconnection station in Hunts Point, the Bronx, and New York."¹¹⁵

This issue relates back to the Task Force's original inquiry. It seems that Iroquois is currently delivering gas to New York and with very little addition infrastructure Iroquois can infuse additional natural gas into the New York area for their already existing customers. And since the Task Force has determined that it is these electrical generation plants that are the largest consumers of natural gas and IGTS is supplying the need for that natural gas to Con Edison, then Broadwater may not be needed in this area as the concerns are currently being addressed by an existing and expanding IGTS.

In short the Task Force is at a loss to determine the market that Broadwater wishes to service. It may be that more gas is needed in certain areas of New York or the surrounding New York region; however Broadwater has not disclosed those areas that are in need of more gas. Broadwater should define a market and the end users in order to determine the need for Broadwater.

LACK OF A NATIONAL ENERGY POLICY:

Our Nation is suffering from a deficient national energy policy. In Connecticut, we are consequently facing problems caused by this lacking energy policy. A lacking energy policy has hampered ISO New England (ISO) and DPUC in their effort to juggle the various energy complexities. However, ISO New England and DPUC need to be more aggressive in dealing with energy issues that adversely affect the state. For example, this winter the electric generation companies announced via ISO that there is

¹¹³ In the matter of: Millennium Pipeline Company L.P., Columbia Gas Transmission Corporation, Empire Pipeline, Inc., Algonquin Gas Transmission LLC, Iroquois Gas Transmission System, L.P., Docket Nos. CP98-150-006 and -007, CP05-19-000, CP06-5-000, PF06-5-000, PF06-6-000.

¹¹⁴ Presentation by IGTS to the Town of Brookfield 2-9-06

¹¹⁵ Northeast Gas Association, December 2005

insufficient gas for the electrical generation facilities to meet the expected winter demand and therefore Connecticut customers may experience rolling black outs throughout Connecticut. In fact what happened were these electrical generation plants that purchased gas at favorable prices in the earlier part of 2005, and then sold those favorable contracts for a profit when the gas prices soared in the fall of 2005. All this was done to the detriment of Connecticut residents. ISO and DPUC need to react quickly and lash out at the electrical generation companies for partaking in the financial windfall. The response by ISO New England was to warn the residents of Connecticut to be watchful for blackouts; as if somehow Connecticut residents are to blame. As of the date of this report no action has been taken to correct the problem of electrical generation plants selling gas contracts for profit.

In addition DPUC has recently begun to take aggressive steps to encourage alternative fuel use such as cleaner burning coal, or hydrogen fuel. Once again there may be a shortage in natural gas in this area in the years to come but the answer may require unconventional thinking. The answers certainly do not lie in allowing corporations' to create a corporate fix by either using parts of Connecticut as a conduit to pass electricity to other states or stealing a natural resource like the Long Island Sound to be used as their private corporate property. The answer is to deal with the energy issue on a long term basis.

This Task Force agrees and encourages ISO New England and DPUC to work with a select sub group of the Energy and Technology Committee to have an active role in the energy issues and propose possible legislation to inspire creative thinking for a long term energy plan. The Energy and Technology Committee has responded to the best of their ability to deal with these difficult energy issues. The Committee has held various hearings on energy alternative as well as convening conservation conferences at the LOB to determine various strategies. However, this State needs a more active role by ISO New England in conjunction with DPUC to aid our State of Connecticut in implementing economic incentives to create alternatives and other creative thoughts to help plan for the future of Connecticut.

The lack of an energy policy has resulted in the unfair, unpredictable and highly questionable real life consequence which could only be described as a "corporate race to the finish line". In the case of Broadwater it is a race to obtain a non-open access permit for an LNG facility which will corner the market in the northeast. It is clear that the Broadwater proposal, as well as 50 other proposals, either filed with FERC or announced that they will file with FERC, is simply a race by different corporations to obtain FERC approval in order to be the single corporate entity to capture a monopoly on the deregulated energy market. It is not the fault of any corporation attempting to realize profits in the lucrative deregulated energy market; it is the fault of the Federal Government for not instituting a credible and reliable energy plan. In addition the various States, local and regional energy authorities should enact policies and initiatives to protect and plan for foreseen and obvious energy needs that our area is facing and will face in the future. With the current laws in place our country has established a "game

plan” that all but certainly will result in corporations rushing an application to FERC to get a monopolistic approval.

The lack of an energy policy coupled with the efforts by US lawmakers was to inspire corporations to push their projects forward because the process now is both streamlined both by have having one agency, FERC, to quarterback the project and a timeline which would prohibit the project from being deterred in local “not in my backyard” attacks. The recent approval of EPA of 2005 culminated the fast track process and resulted in an explosion of LNG proposals. It is anticipated one or perhaps no more than two LNG facilities would be needed to solve the lack of natural gas issues here in Connecticut, including New York and New Jersey. Currently there are well over 15 proposals to solve the problem which are been identified. FERC’s role is not to judge one proposal against the other because it believes its role is not to make such comparison.¹¹⁶ As a result each corporation is faced with getting their facility approved as quickly as possible in order to control, in this case, the energy needs in the northeast. The absurdity of this result has created everything from incomplete applications to wild dreams of LNG projects. Could this really be considered a sound and safe long term strategy to protect the energy interest not only here in Connecticut but also in the Northeast?

The above coupled with the elimination of open access results in heightening the corporate need to control the energy market by having the new LNG terminal that controls an area that consumes a tremendous amount of natural gas. This draconian thought process has placed this Task Force at odds with FERC and has led to a number of States, Counties, Municipalities and local communities to defend themselves against energy projects which, when dealt with in a more reasonable, rational and result intended manner, could solve the regional energy needs.

SUMMARY:

The Broadwater project will be the biggest impact to the largest area of the LIS. This project has all the complexities of a large scale major development with a significant potential negative impact to the LIS and Connecticut. Never before has there been such a development proposed. Although the Task Force is only reviewing a preliminary application, the issues of safety, security, environment, and economics are all a major component to this project. The above coupled with a corporate race to a finish line creates a review process which should be methodical and meticulous. Every alternative should be examined, every safety issue explored and every economic impact studied and analyzed. The Broadwater project may not the only solution to solving the energy supply issues of Connecticut and the Northeast. It is one of some 30 possible solutions and as such it should be examined in the light of a possible solution.

¹¹⁶ Richard R. Hoffmann, Director Division of Gas-Environmental Engineering Office of Energy Projects Federal Energy Commission, Task Force Meeting 12-07-05.

The preliminary study has at least raised the following concerns which may pose a problem for the Broadwater project: 1) impact to the LIS; 2) impact to the Groton submarine base; 3) Broadwater's customer base; 2) the ability for Broadwater to use the IGTS pipeline to deliver the LNG; and 3) the alternative of the Maritime & Northeast pipeline seems a more direct method for delivering the natural gas to the northeast and almost all of the infrastructure is already in place suggesting a faster timeframe than that of Broadwater.

The Task Force has made some recommendations to the preliminary application by Broadwater. The Task Force has also identified several aspects of the project which need further review and further analysis once the final plans are submitted. The identifications of the issues will now be followed by matching those concerns with the detailed final submission of the plans by Broadwater.

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