1.0 INTRODUCTION

On January 30, 2006, Broadwater Energy LLC and Broadwater Pipeline LLC (jointly termed Broadwater, or the applicant in this EIS) filed an application with the Federal Energy Regulatory Commission (FERC, or the Commission) for the Broadwater LNG Project (the Project) under Sections 3(a) and 7(c) of the Natural Gas Act (NGA). FERC issued a notice of the application in the Federal Register on February 17, 2006.

In Docket Numbers CP06-54-000 and CP06-55-000, Broadwater[1] seeks authorization to construct, install, operate, and maintain a liquefied natural gas (LNG) import, storage, and regasification facility and a new offshore natural gas pipeline and ancillary facilities to connect to the existing interstate natural gas transmission system. The proposed Project would transport up to 1.25 billion cubic feet per day (bcfd) of imported natural gas to the region that includes Long Island, New York City, and Connecticut. All Project facilities would be in the Suffolk County, New York waters of Long Island Sound.

Broadwater is proposing to construct, install, operate, and maintain a floating storage and regasification unit (FSRU), a yoke mooring system (YMS), and a natural gas pipeline and associated facilities. The FSRU would receive LNG from LNG carriers that would arrive two to three times per week. The FSRU would include the following main components:

- A single berthing and unloading facility that would accommodate LNG carriers with cargo capacities ranging from 125,000 to 250,000 cubic meters (m^3);
- A total LNG storage capacity of 350,000 m^3 (approximately 8 bcf);
- Closed-loop vaporization equipment capable of an average sendout capacity of 1.0 bcfd and a maximum sendout capacity of 1.25 bcfd; and
- Utility systems, crew quarters, and service facilities.

The YMS would consist of the following main components:

- A mooring tower imbedded in the sea floor;
- A mooring yoke that would connect the FSRU to the mooring tower; and
- Flexible sendout transfer lines and a pipeline to the subsea pipeline, communication and control lines, and a smart pig[2] launching facility.

The natural gas pipeline and associated facilities would include:

- A 21.7-mile-long, 30-inch-diameter natural gas pipeline;

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[1] Broadwater Energy LLC is jointly owned by TCPL USA LNG, Inc. (a subsidiary of TransCanada Corporation) and Shell Broadwater Holdings LLC (a subsidiary of Shell Oil Company). Broadwater Pipeline LLC is owned by Broadwater Energy LLC.

[2] Pipeline pigs are cleaning and inspection devices that are inserted into a pipeline and propelled forward by the pressure of the natural gas or other gas or fluid in the pipeline.

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- A hot-tap subsea connection to the existing Iroquois Gas Transmission System (IGTS) pipeline; and
- Valves, a smart pig receiving facility, and undersea communication and control lines.

Both temporary and permanent onshore facilities would be required during construction and operation of the proposed Project. To the extent practical, Broadwater proposes to use existing facilities to avoid or minimize environmental impact associated with the onshore facilities. Onshore facilities would include:

- Existing office and warehouse facilities to support activities during both construction and operation;
- An existing waterfront facility with berthing for up to four tugs and dockside crane capabilities during both construction and operation; and
- A 10-acre pipe storage area within an existing developed area at the Port of New York / New Jersey during construction.

The Broadwater LNG Project would not include facilities that are outside of the Commission's jurisdiction. However, as described in Section 1.3, the U.S. Department of Homeland Security, U.S. Coast guard (Coast Guard) is a cooperating agency for the National Environmental Policy Act (NEPA) review process for the Project in accordance with the interagency agreement among FERC, the Coast Guard, and the Special Programs Administration[3] and has provided expertise in reviewing matters related to navigation safety, vessel engineering, vessel safety standards, and port security. In addition, the Coast Guard has regulatory responsibilities for certain aspects of the import terminal (the FSRU) and for the LNG carriers that would deliver LNG to the import terminal. As part of that responsibility, the Coast Guard assessed the potential navigation safety and maritime security risks associated with the Project and identified strategies for managing potential risks. Additional information on the Coast Guard's responsibilities is presented in Section 1.3.1.

The remainder of this introduction addresses the following:

- Project purpose and need (Section 1.1);
- Purpose and scope of this statement (Section 1.2);
- Permits, approvals, and regulatory requirements (Section 1.3); and
- Public review and comment (Section 1.4).

1.1 PROJECT PURPOSE AND NEED

This section summarizes the need for the Project based on reported current and future trends in natural gas demand, supply, price, and reliability and consists of the following subsections:

- Summary statement of purpose and need (Section 1.1.1);
- Natural gas demand (Section 1.1.2);

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[3] 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.

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- Natural gas supply (Section 1.1.3);
- Natural gas prices (Section 1.1.4);
- Integrating supply and demand (Section 1.1.5); and
- Need for LNG imports (Section 1.1.6).

1.1.1 Summary Statement of Purpose and Need

The Project entails establishment of an LNG marine terminal capable of receiving imported LNG from LNG carriers, and storing and regasifying the LNG at an average sendout rate of 1.0 bcfd. The terminal would provide a new source of reliable, long-term, and competitively priced natural gas to the Long Island, New York City, and Connecticut markets by connecting to the existing natural gas pipeline system.

Broadwater estimated that approximately half of the natural gas sent out from the FSRU would be transported to New York City, about 25 to 30 percent would go to Long Island, and the remaining portion would go to Connecticut. In a report prepared for the applicant, Energy and Environmental Analysis, Inc. used its historical market hindcast to estimate that current gas consumption in the New York City, Long Island, and southern Connecticut region is approximately 700 bcf per year – and has been growing at a rate of 2.7 percent per year. In the past 10 years, electric power generating facilities in the region have increased output by about 5.6 percent per year, and annual consumption of natural gas by those facilities increased by about 100 bcf. Increased supplies of natural gas provided by the Project would help meet the growing energy demands of the region while also helping to meet regional air quality objectives.

In fact, Connecticut's Public Act 02-64, which limits sulfur dioxide (SO_2) emissions, could reduce or eliminate generating capacity at coal- and oil- fired plants at Bridgeport, Middletown, Devon, Monteville, New Haven, and Norwalk. The Independent System Operator - New England (ISO-NE) predicts a substantial loss of reliability if plants in Bridgeport and Norwalk are affected before new (gas-fired) generation or expanded transmission capability is added in southwest Connecticut (Connecticut Siting Council [CSC] 2004).

In an environment of increasing natural gas consumption, LNG imports from overseas would provide a needed diversification to current supplies provided by pipelines originating in the U.S. Gulf of Mexico and Canada. Gas from those areas accounts for approximately 85 percent of the gas consumed in the New York City, Long Island, and Connecticut region, and production from those areas is projected to diminish over the next 20 years. The Project would reduce the region's future need for additional transportation infrastructure (new or expanded interstate natural gas pipelines), facilities that have been difficult to build in the region.

1.1.2 Natural Gas Demand

1.1.2.1 National Trends

The U.S. Department of Energy's (DOE's) Energy Information Administration (EIA) reported current and projected energy demand in its most recent Annual Energy Outlook (EIA 2005a). According to that report, the total primary energy consumption within the United States will increase from 98.2 quadrillion British thermal units (Btu) in 2003 to 133.2 quadrillion Btu by 2025, and the demand for natural gas within the United States will increase at an average annual rate of 1.5 percent through 2025. Nearly 75 percent of this increase is attributed to gas-fired power generating facilities and other industrial applications. The ISO-NE reported that the increased demand for natural gas to fuel electric generating

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plants is in part because the use of natural gas minimizes capital costs and increases energy conversion efficiency while facilitating compliance with environmental regulation (ISO-NE 2005a).

1.1.2.2 Regional Trends

The New York State Energy Resource Development Authority (NYSERDA) reported that (1) natural gas demand within New York State is expected to grow about 1.2 percent annually, with the majority of this increase due to natural gas demand for electric power generation; and (2) more than two-thirds of the projected growth is for use in the area from Rockland and Orange Counties through Long Island (NYSERDA 2002). The Task Force on Long Island Sound (TFOLIS) projected an increase in natural gas demand in the Long Island area of about 3.3 percent annually and expects that demand for natural gas will increase between 1.5 and 1.7 percent annually in Connecticut (TFOLIS 2003) as that state's population grows. As reported by the CSC, the state's electric generation is evolving from primarily oil-fired units to primarily gas-fired units (CSC 2004).

The report of Hausman et al. (2006), issued by Synapse Energy Economics, Inc. (Synapse report, prepared at the request of Save the Sound, a program of the Connecticut Fund for the Environment) stated that the region ". . . has and will continue to have ample natural gas import capacity to supply the regional demand for most days of the year . . ." and that capacity shortfalls ". . . would only materialize during peak demand periods during the winter heating season . . .". (Additional information regarding the analyses included in the Synapse report is presented in Section 1.1.5.4).

New York City

Peak demand for natural gas among the customers of KeySpan Energy Delivery New York and KeySpan Energy Delivery Long Island in the New York City/Long Island market is about 2.2 bcfd (TFOLIS 2003). Total peak demand in New York City (which includes KeySpan customers as well as customers of other gas delivery companies) was as high as about 3.1 bcfd (Energy Policy Task Force 2004). Natural gas demand in New York City is expected to increase at an annual rate of about 3.3 percent. While population growth, changing home heating regimens, and increased per capita energy demands are components of the projections, the trend toward changing to natural gas as the fuel of choice for electric generation will be the primary reason for the increase.

Demand from New York City's Electricity Generators

Under a mandate from the New York State Reliability Council, New York City is required to maintain on-site electric generating capacity equal to 80 percent of peak demand. The New York City Energy Policy Task Force (Energy Policy Task Force) (2004) reported that New York City's 8,816-megawatt (MW) generating capacity exceeded this 80-percent threshold by less than 1 percent in 2003, and that the generating capacity at that time likely was not sufficient to meet projected demand for electricity – even when combined with a system of demand-side management, distributed generation, and electricity importing.

In that same report, the task force indicated that in order to accommodate growth, ensure reliability, retire environmentally inefficient facilities, and stabilize prices, the City would need to add generating capacity at a rate of about 8.5 percent per year between 2003 and 2008 (Energy Policy Task Force 2004). While a balanced energy portfolio that includes wind, solar, hydroelectric, biomass, and distributed generating technologies may diversify the region's energy portfolio and buffer the system from price spikes, the primary means of meeting New York City's future generation requirements likely would be natural gas.

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Since 2003, the City has added generating capacity at Con Edison's East River site (125-MW net increase in capacity), KeySpan's Ravenswood addition (250 MW), and New York Power Authority's (NYPA's) Poletti Plant (500 MW) – each of which uses natural gas-/oil-fired combustion turbine generators. Astoria Energy is adding 1,000 MW of natural gas-fired generating capacity that is scheduled to come online by 2008. A fifth project, proposed by Reliant Energy and certified by New York State, would re-power an existing 1,263-MW generating facility with 1,816-MW natural gas-fired combustion turbines. This re-powering would result in a net reduction in air emissions and water withdrawals, along with the increased generating capacity. In addition, environmental requirements limit the use of alternative fuels at dual-fuel facilities to 720 hours (30 days) per year.

These projects have moved New York City toward its capacity goals. Nevertheless, in 2004 and 2005, NYPA and Con Edison issued requests for proposals designed to provide additional sources of electricity to New York City (NYPA 2005).

Long Island

Demand for natural gas on Long Island has been increasing at about 8 percent per year for the past several years. KeySpan Energy Delivery Long Island projects that demand is likely to increase at about 4.5 percent per year over the next 20 years (cited in TFOLIS 2003). In a 2006 comment to FERC regarding the Millennium Pipeline Phase I expansion, the New York State Public Service Commission noted that "Moderate load growth downstate is expected over the next several years in the core gas load. The greatest growth is expected on Long Island up to 5 percent per year."

Similar to the situation described for New York City, population growth, changing home heating regimens, and increased per capita energy demands are components of Long Island's increasing demand for natural gas. However, the shifting fuel preference in the generation of electricity is the primary reason for Long Island's increasing demand for natural gas.

Demand from Long Island's Electricity Generators

The Long Island Power Authority (LIPA) is designated as the "provider of last resort" for many Long Island customers. This means that LIPA is responsible for offering power supply to any customer unwilling or unable to arrange for an alternative power supply. As the provider of last resort, LIPA has assumed much of the responsibility for ensuring that Long Island has sufficient generating capacity.

LIPA (2005a) indicated that 2005 peak summer demand for electricity on Long Island reached about 5,267 MW. That demand is expected to grow about 90 MW per year (LIPA 2004).

LIPA currently contracts with KeySpan Energy to purchase electricity. KeySpan's facilities, all but one of which are natural gas or dual-fuel facilities, can generate about 4,885 MW for Long Island. As of 2003, LIPA had contracted with other on- and off-Island facilities to generate additional capacity of approximately 784 MW. Importation of energy to Long Island is limited by transmission infrastructure. This infrastructure is limited to four lines connected to the New York Power Pool grid (Lines 901, 903, Y-49, and Y-50) and two lines connected to the ISO-NE grid (the 1385 Line and the Cross Sound Cable, which was recently acquired by Babcock and Brown). These six lines provide Long Island a transfer capacity of about 1,790 MW (TFOLIS 2003).

Given the current peaks of about 5,267 MW, the projected 90-MW annual increase in demand, current on-Island generating capacity of approximately 5,000 MW, and constraints on importation of energy, LIPA (2004) anticipates that – without actions designed to increase generating capacity – electricity supply shortfalls would occur in the near and long term.

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To address these shortfalls, and following a public participation process, LIPA generated an energy plan (LIPA 2004). Components of that plan include energy purchases from a 140-MW wind farm to be constructed by FPL Energy and six projects expected to generate 73 MW of energy efficiency gains. LIPA has contracted for energy purchase from the EQUUS Project (49 MW) and the Village of Freeport Project (10 MW), each of which are gas/oil facilities. Further, LIPA is committed to three natural gas-fired projects: Calpine at Bethpage and Pinelawn Power at Babylon that would generate nearly 80 MW each, and Caithness at Bellport that would generate 326 MW. LIPA also is committed to adding 660 MW of import capacity via the Neptune Cable, which will connect Long Island to the mid- Atlantic energy grid (the Pennsylvania New Jersey Maryland Power Pool, or PJM). As of March 2006, LIPA expected Neptune to be online by June 2007.

These circumstances are indicative of an increased demand for natural gas among Long Island electricity generators. Moreover, because the new generating capacity is designed to help meet peak electric demand, new and retrofitted facilities may be less likely to contract for interruptible natural gas service. As such, it may become harder for natural gas suppliers to meet both home heating demand and demand by electric generating facilities on the coldest days.

Connecticut

Peak natural gas demand in Connecticut, exclusive of interruptible service, was forecast at approximately 0.8 bcfd in winter 2003–2004, and the state's local distribution companies projected that demand will increase between 1.5 and 1.7 percent annually in the near future (TFOLIS 2003). As in New York, Connecticut's projected increases in natural gas demand will be driven largely by the natural gas needs of electrical generation plants.

Demand from Connecticut's Electricity Generators

According to the CSC (2004), total energy output requirements for Connecticut are projected to increase from about 6,851 MW in 2002 at an annual average growth rate of 1.6 percent over the next several years. In 2003, Connecticut's available installed capacity was about 6,138 MW (ISO-NE 2005a). Transmission lines between New England and New York, New Brunswick, and Hydro Quebec allow Connecticut to make up for this generating deficiency. However, high-voltage transmission lines do not penetrate southwestern Connecticut. As a result, ISO-NE reports that, in order to supply electricity to high-demand pockets, up to 2,209 MW of generating capacity can be forced to operate despite costs that exceed revenues (TFOLIS 2003).

While increasing demand will continue to be partially offset by demand-side management, use of renewable resources, and importing electricity, the CSC reports that southwestern Connecticut remains susceptible to supply deficiencies and voltage instability associated with insufficient transmission and inadequate generation resources in the region (CSC 2004). ISO-NE reports that between 170 and 300 MW of generating capacity need to be added in southwestern Connecticut by 2006 (TFOLIS 2003).

In addition, Public Act 02-64, which limits SO_2 emissions, could reduce or eliminate generating capacity at Bridgeport, Middletown, Devon, Monteville, New Haven, and Norwalk. ISO-NE predicts substantial loss of reliability if plants in Bridgeport and Norwalk are affected before new additional generation or transmission capability is added in southwestern Connecticut (CSC 2004).

To partially address the projected shortfall and to offset potential reductions in generating capacity associated with facility retirement and environmental regulation, the CSC has approved seven applications for natural gas-fired facilities. Located throughout Connecticut, the total capacity of these plants would be about 3,682 MW if all are constructed. All new facilities are to be gas fired (TFOLIS

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2003). Each has been approved independently of the proposed Project and likely would receive natural gas from existing natural gas transmission pipelines located near the Project, perhaps requiring construction of short connecting pipelines (laterals).

The facts identified by FERC are consistent with the CSC (2004) projection: the state's fuel mix for electric generation will change dramatically from oil-fired and nuclear units to natural gas-fired units during the next 20 years, and this change is driven by the cost effectiveness of natural gas generation in meeting emissions regulations.

1.1.3 Natural Gas Supply

1.1.3.1 National Supply

The United States currently obtains its natural gas supply from three sources: domestic production, imports from Canada, and a relatively small amount of LNG imports from overseas sources. Domestic production of natural gas has remained relatively flat over the past several years, and projected increases in production do not keep pace with projected demand. The Annual Energy Outlook (EIA 2005a) indicates that total energy consumption is expected to increase more rapidly than domestic energy supply through 2025 and that, to offset this imbalance, net imports of energy are expected to constitute 38 percent of the total U.S. energy use by 2025.

According to EIA (2005a), domestic onshore production of natural gas is projected to increase from 13.9 trillion cubic feet (tcf) in 2003 to 15.7 tcf in 2012, and then decline to 14.7 tcf by 2025; domestic offshore production of natural gas is projected to increase from its current level of 4.7 tcf annually to nearly 5.3 tcf by 2014, and then decline to 4.9 tcf by 2025.

The EIA (2006) reported on the current and projected gas supplies from Canada:

> "Canada, currently the source of almost 90 percent of U.S. net natural gas imports, remains the primary source of natural gas imported into the United States until 2010. After 2010, LNG imports replace Canadian imports as the primary source. The decline of Canada's largest producing basin, the Western Sedimentary Basin, coupled with 1.9-percent projected average annual growth in Canada's domestic consumption, leaves less Canadian natural gas available for export to the United States.
>
> "In Canada, most of the projected increase in natural gas consumption is for industrial uses and electricity generation, with only moderate growth in the other consuming sectors. Although natural gas use in Canada's electric power sector more than doubles from 2003 to 2030, the largest absolute increase is projected for the industrial sector, largely because significant amounts of natural gas are expected to be used in the mining of Canada's expansive oil sands deposits.
>
> "Canada produced more than twice as much natural gas as it consumed in 2003, and the balance was exported to the United States. In 2030, Canada is projected to consume 85 percent of its own production, leaving only 15 percent available for export."

This information suggests that the supply of Canadian natural gas to the U.S. will decrease substantially during the period of time that the Broadwater Project would be in operation if approved and constructed.

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In summary, if U.S. natural gas supplies are to grow, that growth is unlikely to come from traditional U.S. and Canadian sources. Instead, unconventional domestic production, natural gas from Alaska, and imports of LNG will be required.

1.1.3.2 Regional Supply

In response to many new and replacement energy infrastructure projects proposed within the Long Island Sound region, the State of Connecticut assembled a task force (TFOLIS) to "assess the state's process for balancing energy reliability and the need for transmission expansion projects, both for Connecticut and for the region, with enhanced protection of the natural resources of Long Island Sound." Their directive was to "evaluate the necessity and benefit of electric, gas, and telecommunications infrastructure crossings of Long Island Sound." The task force assessed the current regional energy needs and infrastructure. The following summarizes information reported by TFOLIS (2003).

Southwestern Connecticut is threatened with supply deficiencies and voltage instability due to inadequate transmission and generation resources within the region. As facilities re-power and additional generating capacity is added, Connecticut's electric generating fuel mix is expected to increase from 24 percent natural gas in 2002 to 48 percent by 2011. In New York and Long Island, LIPA and Con Edison will be required to meet a steadily increasing demand for electricity by using a combination of demand-side management, increased transmission capacity from off the Island, renewable resources, and re-powering or construction to generate an additional 100 MW per year through 2011. Natural gas is the preferred fuel for re-powered and newly constructed generating facilities as fuel oil combustion is limited by air quality regulations.

Long Island and New England have essentially no indigenous sources of natural gas (about 47 bcf of natural gas was extracted from the Finger Lakes region of New York State in 2005); natural gas consumed in these areas is imported via several interstate pipelines. Gas from the Gulf of Mexico is transported to the region through several interstate pipelines: the Transco, Tennessee Gas, and Texas Eastern pipelines serve New York and Long Island; while the Tennessee and Algonquin pipelines bring gas from the Gulf to New England[4]. The Tennessee Gas and IGTS pipelines provide New York and Connecticut with access to western Canada's reserves via connections to the TransCanada Line, as shown in Figure 1.1-1. Because New York and New England are at the end of these transmission systems, they are subject to the uncertainties of transport and demand at all upstream locations. Energy and Environmental Analysis, Inc. (EEA 2006) reported that as of January 2006, the capacity of the IGTS pipeline to provide natural gas to New York City and Long Island was about 580 million cfd and that the average throughput to New York City and Long Island in 2005 was about 380 million cfd.

In 1999, the Maritimes & Northeast pipeline began transporting about 0.4 bcfd of natural gas from Nova Scotia to gas utilities and power producers in New England. Access to this reserve meant that New England was no longer at the end of all supply lines. In addition, construction of the proposed Islander East pipeline would provide regional access to the remaining capacity (about 0.3 bcfd). However, the Nova Scotia fields are relatively small, and their long-term potential is uncertain.

In addition, LNG from the Distrigas terminal in Everett (Massachusetts) is shipped via pipeline (about 1 bcfd), and 0.1 bcfd is shipped by refrigerated truck to storage facilities throughout New England. These storage facilities have a capacity of about 15.1 bcf.

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[4] A portion of the gas in the Algonquin and Tennessee Pipelines originates at the Everett (Massachusetts) LNG terminal, and some of the gas in the Transco pipeline originates at the Cove Point (Maryland) LNG terminal.

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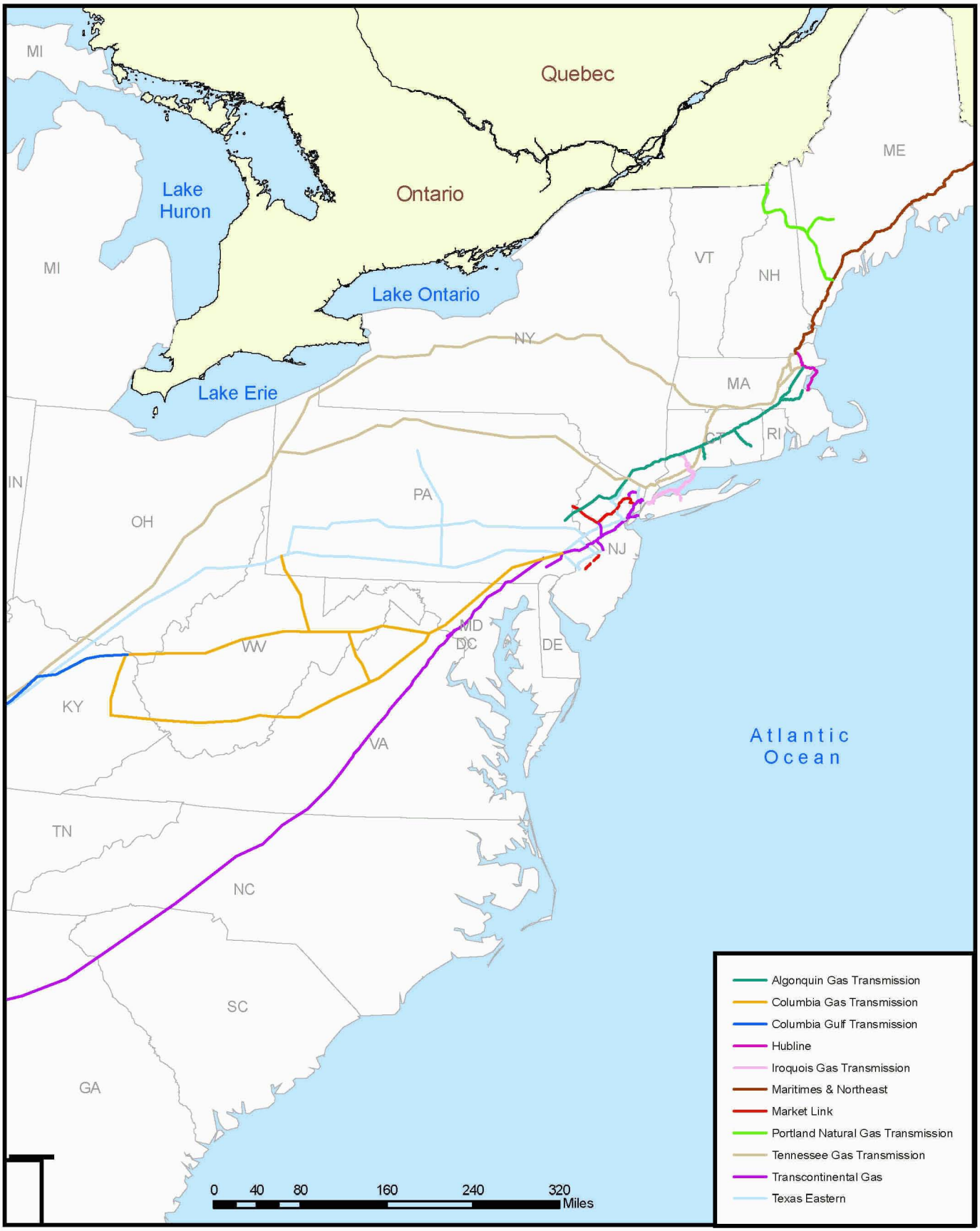

Figure 1.1-1
Broadwater LNG Project
Existing Northeast Natural Gas Pipeline System

Finally, several new pipeline projects have been proposed within or near the regional market areas that would be served by natural gas from the Broadwater Project (see Section 4.3). Each of the projects would supply gas obtained from existing U.S. and Canadian sources. If all were constructed as proposed, the maximum potential increase in gas supply to the New York City, Long Island, and Connecticut markets would be a small fraction of the gas that would be supplied by the Project.

New York City

Three interstate pipelines that transport gas from the Gulf Coast region serve New York City: the Transco, Texas Eastern, and Tennessee Gas pipelines. A fourth interstate pipeline, the IGTS pipeline, brings gas from the TransCanada pipeline through upstate New York and Connecticut and eventually to New York City. These same pipelines link New York City to underground storage facilities in Pennsylvania and New York. All gas flowing into New York, except for gas supplied via the IGTS pipeline, must first pass through the New York Facility System (a high-pressure system extending across the Hudson). Total capacity to New York City is about 2 bcfd. Phase I of the Millennium Project has been approved and the proposed MarketAccess Project is currently being reviewed (see Section 4.3.1). If both projects are implemented, an additional 0.1 bcfd of natural gas from existing sources would be available to the New York, New Jersey, and New England markets.

Long Island

Gas is supplied to Long Island either directly or via displacement through the same system of interstate pipelines that serves New York City. Prior to operation of the IGTS pipeline, inadequate access to natural gas resulted in limited gas service on Long Island. With the advent of the IGTS pipeline, capacity increased to about 0.8 bcfd, allowing an extension of Long Island's natural gas distribution network and reducing – but not eliminating – the supply shortfall on Long Island. As described in Section 4.3, if two proposed pipeline systems are constructed (the Islander East Pipeline Project and the Leidy-to-Long Island Pipeline Project), they could provide Long Island with an additional 0.4 bcfd of natural gas from existing sources.

Connecticut

Three interstate pipelines serve Connecticut: the Algonquin pipeline serves New Jersey and New York State before delivering to Connecticut, Rhode Island, and Massachusetts; the Tennessee Gas pipeline services customers throughout the Mid-Atlantic and Northeast regions before arriving in Connecticut; and the IGTS pipeline brings gas from the Ontario/New York border through upstate New York into Connecticut and eventually onto Long Island and New York City. Connecticut has access to about 0.6 bcfd of pipeline capacity and about 0.2 bcfd of LNG vaporization and propane/air peak shaving capability (TFOLIS 2003).

1.1.4 Natural Gas Prices

According to EIA (2005a), natural gas commodity prices in the New York and Connecticut region have shown a clear tendency toward increasing average prices and increasing price volatility. New York City gate prices averaged $2.93 per thousand cubic feet over the 5-year period from 1995 to 1999. Over the next 3 years (2000 to 2002), New York City gate prices averaged $4.37 per thousand cubic feet, an increase of 49 percent. In 2003 and 2004, average price levels increased an additional 35 percent. Supply interruptions in the Gulf of Mexico associated with Hurricanes Katrina and Rita caused prices to spike to all-time highs in fall 2005. As shown in Table 1.1-1, Connecticut has experienced a similar situation. This is consistent with the observation that the regional increase in demand is outpacing the regional increase of supply and may continue to do so.

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TABLE 1.1-1 Historical New York City and Connecticut Gas Prices[a]			
	1995–1999 Period	2000–2002 Period	2003–2004 Period
New York City	2.93	4.37	5.90
Connecticut	4.97	7.15	6.53

[a] Prices are reported in dollars per thousand cubic foot; source: EIA 2005a.

In addition to climbing natural gas prices in the region, the volatility of natural gas prices has increased. ISO-NE (2005a) concluded that, without at least one or two new LNG projects serving New England, prices are likely to be volatile during the peak winter months and competition for gas supply will continue to heighten between the traditional gas markets and the power generators.

Several factors may be contributing to the observed increase in price volatility. Because sources of natural gas are limited in the region, unusual conditions along any one pipeline can significantly reduce total regional supply. In addition, because gas markets in New York City, Long Island, and Connecticut are geographically intertwined, weather patterns affect much of the region simultaneously – causing large demand fluctuations throughout the entire region. Because New York City, Long Island, and Connecticut are near the end of most interstate pipelines, area prices are sensitive to any event that occurs along the considerable length of upstream pipeline. Further, a significant and increasing proportion of electric power generation in the Northeast United States is gas fired. As a result, periods of extreme winter weather produce simultaneous spikes in the demand for electricity and the demand for home heating.

1.1.5 Integrating Supply and Demand

The integration of supply and demand for natural gas in New York City, on Long Island, and in Connecticut is addressed below. In this portion of the EIS, we[5] have focused on the use of natural gas to meet the energy needs of the markets in those areas because of the stated purpose of and need for the proposed Broadwater Project. We also have addressed the premises and conclusions of the report of Hausman et al. (2006), issued by Synapse Energy Economics, Inc. (Synapse report, prepared at the request of Save the Sound, a program of the Connecticut Fund for the Environment). The Synapse report, which is the only report we found that suggests there is not a need, except during peak winter demand periods, for additional natural gas supplies in the area (see Section 1.1.5.4).

Alternative energy supplies, energy conservation, and other alternatives to the proposed Project are addressed in Section 4.0 of this EIS.

1.1.5.1 New York City

In a 2004 report to Mayor Bloomberg, the Energy Policy Task Force reported "Natural gas and distillate oils are the only fuels burned in combustion turbines and combined cycle plants • •the types of plants that have comprised most generation additions since the 1980s. Looking forward, most new in-city generation will utilize natural gas as the primary fuel, as environmental requirements limit the use of

[5] The pronouns "we," "us," and "our" refer to the environmental staff of FERC's Office of Energy Projects.

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alternative fuel to 720 hours (30 days) per year. Given increased reliance on natural gas, there could be reliability and cost impacts from inadequate gas pipeline capacity."

The Energy Policy Task Force report recommended that the City "Support development of additional interstate pipeline and gas supply projects (and natural gas efficiency programs) in the metropolitan area, consistent with other environmental and land-use considerations. The city should particularly encourage gas projects that increase the number of interstate pipeline interconnections into the city and independent supply sources to enhance reliability, increase diversity, and reduce price volatility." This recommendation was based on the observation that "Existing pipeline (infrastructure) is currently used to capacity during peak periods."

The Energy Policy Task Force's conclusions are consistent with KeySpan's statement that "There is need for incremental gas capacity to supply and serve future generations and the conversion of existing oil burning electric generation to gas" (TFOLIS 2003). Con Edison, in its statement of support for the proposed Project, echoed this opinion by stating that the availability of a new source of gas could increase the amount of gas used in power generation, resulting in a reduction of nitrogen oxide (NO) and SO_2 emissions.

The Energy Policy Task Force's conclusions are also consistent with the results of the NYSERDA's State Energy Plan (2002), which modeled gas demand under a series of scenarios that accounted for increased demand in New England, current and nearly complete pipeline infrastructure, and changes in fuel preferences. The report concluded that approximately 0.4 to 0.8 bcfd of pipeline capacity would need to be added to New York's infrastructure to meet gas demand in the year 2010 under normal winter conditions. That requirement would increase to between 1.0 and 1.6 bcfd under more severe weather conditions. The report also noted that increased gas capacity is likely to displace fuel oil-fired electrical generation and would result in air quality improvements.

1.1.5.2 Long Island

As noted above, the supply of natural gas on Long Island was limited prior to operation of the IGTS pipeline. Even now, natural gas is not available in several Long Island areas. In addition, LIPA has contracted for energy purchase from the EQUUS and the Village of Freeport Projects, both of which are gas/oil facilities. Further, LIPA has plans to issue a request for proposals to operate one or more new combined-cycle power plants that are also natural gas/oil fired.

After developing a plan that incorporates demand-side management, development of renewable resources, and alternative energy sources, LIPA has stated that they support development of an additional pipeline connection to Long Island (KeySpan cited in TFOLIS 2003). This connection would help meet on-Island demand, which is expected to continue to increase at 4.5 percent per year; provide reliability benefits; and offer an additional source of natural gas supply. The majority of the projected growth is associated with non-interruptible contracts that represent 98 percent of the company's contracts. Given Long Island's current consumption levels and the maximum delivery rate of 0.8 bcfd due to system constraints, the need for additional natural gas is apparent.

1.1.5.3 Connecticut

The CSC's 2004 report notes that "The choice to use natural gas to generate electricity has placed a substantial demand on the natural gas industry. The challenge to provide large quantities of fuel for the generation of electricity is countered by the priority to provide fuel for residential heating." Coupled with the limited amount of dual-fuel capability in New England, the CSC reports that ISO-NE believes that reliability may be affected by gas pipeline interruptions or by electricity generation/home heating

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conflicts that arise during extremely cold weather. The Connecticut Energy Advisory Board (CEAB) reached a similar conclusion when they advocated the enhancement of natural gas infrastructure in relationship to its growing dependence on LNG as a component of New England's natural gas supply (CEAB 2005). These opinions also are expressed in New England's 2005 Regional System Plan, which calls for development of additional gas infrastructure – including expanding pipeline capacity, LNG storage capacity, and LNG import capability (ISO-NE 2005b).

In attempting to identify alternatives to construction of cross-Sound gas projects, TFOLIS (2003) noted: "New gas pipeline capacity to Long Island would reduce the amount of fuel oil consumed, which would provide regional air quality benefits that would be enjoyed by Connecticut, and would reduce the risk of oil spills into Long Island Sound as a result of fuel oil deliveries. Additional pipelines or expansion of existing ones to Long Island also could allow fuel oil use to be reduced and provide back-up deliverability in case of an interruption on any existing pipeline. Further, such a project would facilitate gas deliveries to rapidly growing portions of Suffolk County, and provide a competing source of natural gas." They further stated "The integrated use of new, well planned, and environmentally preferred infrastructure projects to provide market access to clean energy supply will reduce air emissions associated with obsolete and emergency generating facilities, which could possibly reduce cost to consumers. The certification and permit proceedings for facilities proposed to cross Long Island Sound should consider alternatives to ensure that both state and regional reliability needs are met with the least adverse impact on the environment."

After reviewing proposed and alternative gas projects, TFOLIS did not identify any viable alternatives to gas pipeline construction within Long Island Sound.

1.1.5.4 Alternative Approach Suggested in the Synapse Report

In the Synapse report prepared for Save the Sound, Hausman et al. (2006) postulated that, by fully implementing all foreseeable energy conservation measures and having all potential renewable energy sources online, "roughly 75% of the anticipated growth in regional gas demand over the next decade can be eliminated . . .". The report further suggested that those measures along ". . . with other gas-saving options, such as gas demand-side management, expanded use of combined heat and power operations, and re-powering of existing power plants . . ." could "eliminate or even reverse the trend toward increasing gas use." The Synapse report also asserts that this alternative represents a "socially preferable" alternative for maintaining reliability and price stability in the New York City, Long Island, and Connecticut energy markets. The Natural Resources Defense Council (2006) used similar methods and reached similar conclusions.

FERC's review of the Synapse report indicates that the conclusions and opinions expressed in the report contrast with those reported by New York Independent System Operator (NYISO) (2005), CEAB (2005), TFOLIS (2003), ISO-NE (2005a), the New England Council (2005), the Energy Policy Task Force (2004), NYSERDA (2004), LIPA (2004), New York's natural gas provider KeySpan (cited in TFOLIS 2003), and the Long Island Sound LNG Task Force (2006). The opinions stated in the Synapse report are based on three key concepts:

1. The authors stated that they "were unable to find any studies which provide specific forecasts of even a shortfall in meeting peak demand in this region." Their research suggested that the target region has a sufficient natural gas supply to satisfy the region's natural gas demands "on most days of the year."
2. The authors assert that "natural gas use in New York and Connecticut can be reduced through management of both electricity and natural gas demand, through implementation of renewable energy implementation goals, through expanded use of combined heat and power

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and through improving the efficiency of existing generating plants." The report further suggests that these approaches, combined with natural gas storage to meet peak demands, would result in a socially preferable alternative for meeting the energy needs of New York City, Long Island, and Connecticut.

3. If conservation and renewable energy did not eliminate the need for additional natural gas, the Maritimes & Northeast pipeline expansion, combined with two LNG terminals currently under construction in Canada, are "more appropriate supply side options."

Regarding the first concept, we note that NYSERDA's State Energy Plan (2002) modeled gas demand under a series of scenarios that accounted for (a) increased demand in New England, (b) current and nearly complete pipeline infrastructure, and (c) changes in fuel preferences. NYSERDA concluded that approximately 0.4 to 0.8 bcfd of pipeline capacity would need to be added to New York's infrastructure to meet gas demand by the year 2010 under normal winter conditions. That requirement would increase to between 1.0 and 1.6 bcfd under more severe weather conditions. The NYSERDA report also noted that increased gas capacity is likely to displace fuel oil-fired electrical generation and would result in air quality improvements.

In addition, the Long Island Sound LNG Task Force, which was established by the Governor of Connecticut, stated the following in its interim report (Long Island Sound LNG Task Force 2006):

> "...To meet reliability obligations, as set by the Department of Public Utility Control (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. Such a standard insures that firm customers retain service even during periods of a long sustained cold spell.... As a result of electric generation plants switching to natural gas a tremendous demand for natural gas has quickly emerged.... 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."

Finally, LIPA has stated that it supports development of an additional pipeline connection to Long Island (KeySpan cited in TFOLIS 2003). This connection would help meet on-Island non-interruptible demand (which is expected to continue to increase at 4.5 percent per year), provide reliability benefits, and offer an additional source of natural gas.

As noted in the second concept listed above, the authors of the Synapse report assert that local storage facilities, investments in energy efficiency, renewable energy, and conservation represent "economically and socially preferable alternatives" for meeting demand requirements. Although we do not address "social preferences" in this EIS, we do note that to offset the EIA (2005a) projected increase in Connecticut/ New York natural gas demand[6], the Synapse report stated that the following would need to occur:

- New York reaches its goal of having 25 percent of its energy from renewable resources by 2013;
- Connecticut reaches its goal of having renewable energy represent 7 percent of total retail sales by 2010;

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[6] The Synapse report used the energy demand information for the area as reported in EIA (2005).

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- Connecticut achieves its goal of increasing its proportion of renewable energy by 1 percent each year after 2010;
- New York saves over 16,000 gigawatt-hours of electricity annually through efficiency measures;
- Connecticut saves over 4,500 gigawatt-hours of electricity annually through electric efficiency measures; and
- A total of 25 percent of projected demand increases in Connecticut and New York is offset by implementing demand-side management programs, and/or increasing combined heat and power operations in the markets, and/or re-powering aging gas-fired plants.

Our review of the Synapse report indicates that the calculations presented in the report are accurate, and the energy saving objectives listed in the analysis are laudable. However, the presumption that all of these objectives can be met is unrealistic at this time. For those objectives requiring investments, the marketplace has not identified entities willing to assume the risk and provide funding to fully implement these undertakings. In addition, although residents of Long Island, New York, and Connecticut currently have access to "green energy programs" (which, for a price premium, inject renewable energy into the markets), to date these programs have not generated behavioral changes of the magnitude hypothesized in the Synapse report as indicated in the following examples.

- LIPA currently offers nearly all of its 1.1 million customers the opportunity to participate in a Green Choice Program. Those who opt into the program pay a surcharge (typically less than $10 per month) to have electricity placed onto LIPA's grid that was produced in an environmentally friendly way. That electricity displaces generation that would otherwise occur at fossil-fuel burning plants (LIPA 2006). Participation in and withdrawal from the program are voluntary and require that the customer notify LIPA several weeks prior to the month in which they would like to change status. According to a recent article (Newsday.com. 2006) 2,131 customers (approximately 0.2 percent of those eligible) have signed up for participation.

- In April 2005, United Illuminating Company began offering its 340,000 Bridgeport and New Haven customers the opportunity to participate in a green energy program called Connecticut Green Energy Options. At the same time, Connecticut Light and Power began offering its 1.1 million customers access to the same program. Those who opt into the program pay a surcharge (typically less than $10 per month) to have electricity placed on the Connecticut grid that was produced in an environmentally friendly way. That electricity displaces generation that would otherwise occur at fossil-fuel burning plants (New Haven Register. 2006). According to a November 2005 article (DOE 2005a) 5,500 customers (approximately 0.4 percent of those eligible) have opted to participate.

- In fall 2005, Con Edison began offering its 3.5 million residential customers the opportunity to participate in a Clean Energy Choice Program. Those who opt into the program pay a surcharge (typically from $5 to $20 per month) to have electricity placed on the New York City grid that was produced in an environmentally friendly way. That electricity displaces generation that would otherwise occur at fossil-fuel burning plants (Con Edison Solutions 2006). Con Edison notes that customers can contract at a fixed annual cost per kilowatt-hour, thus reducing uncertainty with respect to monthly energy costs. As of December 2005, participation rates were below 4.6 percent (DOE 2005b).

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In general, the majority of the public across the United States has not demonstrated a willingness to pay what are typically from $5 to $20 monthly fees to substitute green energy for energy generated via fossil-fuel combustion or nuclear reaction. According to the DOE (2005b), customer participation rates have exceeded 6 percent in only 3 of the more than 500 green energy programs, and typical participation rates are below 1 percent. This is despite the fact that many of these programs have now been in existence for several years.

Finally, with the many fossil-fuel and nuclear energy supplies of the area, even if efficiency gains, conservation efforts, and use of renewable energy were realized to the extent hypothesized in the Synapse report, it is not evident that the result would be a reduction in natural gas consumption of the magnitude suggested in the report. Collectively, the gains achieved through better management, increased efficiency, and renewable energy use could only moderate, not reverse, the projected increases in gas consumption.

We have addressed concept number 3, the transmission of natural gas to the area from LNG import terminals in Canada, in Section 4.3.2 of this EIS. In summary, the LNG terminals in Canada, when coupled with an expanded Maritimes & Northeast pipeline, are not capable of serving the New York City, Long Island, and Connecticut markets without significant expansion of the transmission system. The magnitude of the expansion would result in environmental impacts that would be substantially greater than those of the proposed Project. Further, although a Maritimes & Northeast pipeline would provide additional natural gas at the downstream end of its pipeline system, the volume of gas provided would not fully meet the growing demand for natural gas in the New York City, Long Island, and Connecticut markets.

1.1.5.5 Alternative Approach Based on Seasonal Supply and Demand Cycles

Commentors have noted that (1) there are peaks in natural gas demand during periods of extreme cold during winter in Connecticut, New York City, and Long Island, and (2) the demand for electrical power in those areas peaks during summer heat waves. The commentors have suggested that it may be possible to meet the growing demand for natural gas from electrical generators (which typically peaks in the summer) using the existing natural gas infrastructure because the demand for natural gas is generally at lower levels in the summer.

Historical market behavior suggests that, in the past, this may have been possible. During summer, a portion of the natural gas available in the area has typically been stored, either in natural gas storage caverns in western Pennsylvania and New York State, or by converting it to LNG and storing it in relatively small LNG storage tanks throughout the area. The stored supply was then drawn down during the winter as the demand for natural gas increased. However, in response to the heat wave at the end of July 2006, the EIA (2006) reported an unexpected drawdown of 7 billion cubic feet of the stored supply of natural gas. The summer drawdown suggests that the existing gas-fired electrical generation has diminished the excess supply that was previously available in summer and that as the number of gas-fired electric generation stations increases, the summer demand for natural gas will likely increase further.

Similarly, while the demand for natural gas by traditional wintertime end users remains strong, the demand for wintertime delivery to gas-fired generating stations is increasing. This increasing demand relative to supply and storage capacity contributes to the increasing volatility of natural gas prices in the region.

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1.1.6 Need for LNG Imports

The desire to address increasing price levels, increasing price volatility, and most importantly, to ensure the integrity and reliability of the Northeast's home heating and energy distribution networks has been noted by the NYISO in its recent publication *Power Trends 2005* (NYISO 2005): "The nation in general, and the Northeast in particular, must fashion an effective fuel diversity strategy for dealing with the increasing use and dwindling domestic reserves of natural gas." As noted earlier, this sentiment was echoed by the CEAB, which advocates enhancement of natural gas infrastructure in relationship to Connecticut's growing dependence on LNG as a component of New England's natural gas supply (CEAB 2005). Connecticut's TFOLIS (2003) also noted the environmental benefits associated with increased gas pipeline capacity, as did ISO-NE (2005a). The New England Council (2005) stated "New England needs more LNG infrastructure including import terminals before 2010 in order to meet increasing demands." The Energy Policy Task Force (2004), NYSERDA (2004), LIPA (2004), and New York's natural gas provider KeySpan (cited in TFOLIS 2003) also have expressed support for development of additional energy supplies and infrastructure to meet growing energy needs in the Northeast.

If regional prices are to be stabilized and if the integrity and reliability of the region's home heating and energy networks are to be maintained, new sources of natural gas – preferably from regions outside of the Gulf of Mexico and Canada – are needed for the New York City, Long Island, and Connecticut region.

Natural gas appears to be the fuel of choice in the United States for new power generation, residential heating, and commercial and industrial applications. This is due in part to the efficiency gains of new technologies, lower initial investment costs, relative ease in siting new plants, and lower pollutant emissions from use of natural gas. Continued development of alternative energy sources, renewable energy sources, and investment in energy efficiency programs will offset some of the Northeast region's energy needs. However, the constraints on pipeline transmission of natural gas and consumer behavior indicate that there is a need for an increase in the supply of natural gas in the region, particularly in New York City, on Long Island, and in Connecticut. An increased supply of natural gas could ease regional price increases, reduce price volatility, improve air quality, and allow the region to avoid power shortages while it continues to develop and implement alternative and renewable energy projects.

Traditional natural gas supplies from the Gulf Coast and western Canada will meet only about 75 percent of the projected increases in demand in the U.S. Wellhead and delivered natural gas prices are projected to gradually increase between 2011 and 2025. The increasing long-term trend is in response to the higher exploration and development costs associated with smaller and deeper gas deposits in the remaining domestic resource base (EIA 2005a). Use of LNG would diversify the energy portfolio of New York City, Long Island, and Connecticut and also could ease the upward pressure on natural gas prices associated with a tightening domestic gas market.

LNG imports are already becoming an increasingly important part of the U.S. energy market. Onshore LNG import terminals are currently operating in Everett, Massachusetts; Lake Charles, Louisiana; Cove Point, Maryland; and Elba Island, Georgia. All of these locations have planned or completed expansions of their facilities to meet the growing demand for LNG supplies, and additional facilities are proposed or permitted for construction elsewhere in the United States. These sites will provide LNG imports for the Gulf, New England, Mid-Atlantic, South Atlantic, and Pacific Coast states to help meet the need for natural gas in these market areas. In addition, Canada recently permitted the Bear Head LNG Project on Cape Breton Island, Nova Scotia and the Canaport LNG Project near St. Johns, New Brunswick. While the development of the Bear Head LNG Project has been delayed, the LNG from these terminals, when and if constructed, will be regasified, and some may be shipped as far south as Boston, Massachusetts through proposed expansions of the Maritimes & Northeast pipeline.

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However, with the current interstate pipeline constraints, none of the proposed expansions or new terminal proposals can fully meet the demands of the market in the Long Island, New York City, and southern Connecticut region (see Sections 4.3.1 and 4.3.2).

Natural gas provided by the Broadwater Project would increase the diversity of the region's energy portfolio and could help stabilize natural gas prices. In addition, the Project could improve the reliability of gas distribution in New York City and on Long Island and increase the natural gas supply to Connecticut.

1.2 PURPOSE AND SCOPE OF THIS STATEMENT

FERC is the federal agency responsible for authorizing applications to construct and operate LNG terminals that are onshore or in state waters, and interstate natural gas transmission facilities. As such, FERC is the lead federal agency for preparation of this Environmental Impact Statement (EIS), in compliance with the requirements of the National Environmental Policy Act of 1969 (NEPA), the Council on Environmental Quality (CEQ) regulations for implementing NEPA (40 Code of Federal Regulations [CFR] 1500–1508), and the FERC regulations implementing NEPA (18 CFR 380).

The Coast Guard; the U.S. Army Corps of Engineers (COE); U.S. Department of Commerce, National Oceanic and Atmospheric Administration, (NOAA), National Marine Fisheries Service (NMFS); U.S. Environmental Protection Agency (EPA); and the New York State Department of State (NYSDOS) are cooperating agencies for development of this draft EIS. A cooperating agency has jurisdiction by law or special expertise with respect to environmental impacts involved with the proposal and is involved in the NEPA analysis.

This document is a draft EIS that has been prepared for public review and comment. A final EIS will be prepared subsequently to respond to comments received on this draft EIS. The distribution list for the draft EIS is provided in Appendix B.

Our principal purposes in preparing this EIS are to:

- Identify and assess potential impacts on the natural and human environment that would result from implementation of the proposed actions;
- Describe and evaluate reasonable alternatives to the proposed actions that would avoid or minimize adverse effects on the human environment;
- Identify and recommend specific mitigation measures, as necessary, to minimize the environmental impacts; and
- Facilitate public involvement in identifying the significant environmental impacts associated with all components of the Project.

After a final EIS is prepared, the Commission will determine whether or not the Project should be approved. A final approval will be granted if, after a consideration of both environmental and non-environmental issues, FERC finds that the proposed Project is consistent with the public interest. The environmental impact assessment and mitigation development discussed in this EIS will be important factors in this final determination. Likewise, the Coast Guard will base its LOR on the environmental analysis contained in the EIS, in addition to consideration of waterways navigational suitability.

Our analysis in this EIS focuses on the facilities that are under FERC's jurisdiction and the actions authorized by the Coast Guard. There are no nonjurisdictional facilities related to development of the Project.

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The topics addressed in this EIS include geology, soils, and sediments; water use and quality; marine biological resources; threatened, endangered, and special-status species; land use, recreation, and visual resources; cultural resources; socioeconomics; marine transportation and onshore traffic; air quality and noise; reliability and safety, including port security; cumulative effects; and alternatives. The EIS describes the affected environment as it currently exists, addresses the environmental consequences of the proposed Project, and compares the Project's potential impacts to those of alternatives. The EIS also presents our conclusions and recommended mitigation measures

1.3 PERMITS, APPROVALS, AND REGULATORY REQUIREMENTS

1.3.1 Coast Guard

The Coast Guard is the federal agency responsible for issuing an LOR regarding the suitability of the waterway for LNG marine traffic. The Coast Guard exercises regulatory authority over LNG facilities that affect the safety and security of port areas and navigable waterways under Executive Order 10173; the Magnuson-Stevens Fishery Conservation and Management Act (MSA), (50 United States Code (USC) Section 191); the Ports and Waterways Safety Act of 1972, as amended (33 USC Section 1221 et seq.); and the Maritime Transportation Security Act of 2002 (46 USC Section 701). The Coast Guard is responsible for matters related to navigation safety, vessel engineering and safety standards, and all matters pertaining to the safety of facilities or equipment located in or adjacent to navigable waters up to the last valve immediately before the receiving tanks. As appropriate, the Coast Guard (acting under the authority in 33 U.S.C. Section 1221 *et seq.*) also will inform FERC of design- and construction-related issues identified as part of safety and security assessments. If approved and constructed, the Coast Guard would continue to exercise oversight of the safety and security of this facility. The FSRU would be considered an offshore structure, but the Coast Guard would regulate it in the same manner as a similar shore side facility. The Coast Guard also has authority for LNG facility security plan review, approval, and compliance verification – as provided in Title 33 CFR Part 105; and siting as it pertains to the management of marine traffic in and around the LNG facility.

As part of its responsibility, the Coast Guard assessed the potential navigation safety and maritime security risks associated with the Project and identified strategies for managing potential risks. The assessments addressed the suitability of Long Island Sound, Block Island Sound, and Rhode Island Sound to support LNG carrier traffic. The methods used and results of the analysis are presented in the Coast Guard's Waterways Suitability Report (WSR), which is presented in Appendix D. Following completion of the Coast Guard's review and issuance of the final EIS, the Coast Guard Captain of the Port, Long Island Sector would issue a Letter of Recommendation. The Letter of Recommendation would be based on the WSR and would provide FERC with the Coast Guard's final determination of whether or not the waterways are suitable for the Project

1.3.2 FERC

As the lead federal agency for the Broadwater LNG Project, FERC is responsible for ensuring that the Project is in compliance with the relevant environmental regulations and other requirements. Table 1.3-1 lists the permits, approvals, and consultations that would be associated with the Project.

FERC and the Coast Guard are required to comply with Section 7 of the Endangered Species Act of 1973 (ESA), the MSA, Section 106 of the National Historic Preservation Act (NHPA), and Section 307 of the Coastal Zone Management Act of 1972 (CZMA). Each of these statutes has been taken into account in the preparation of this document.

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TABLE 1.3-1
Major Permits, Approvals, and Consultations

Agency	Permit/Approval/Consultations[a]	Agency Action
FEDERAL		
FERC	Authorizations under Sections 3(a) and 7(c) of the Natural Gas Act (NGA)	Under Section 3(a), FERC determines whether or not importation of natural gas is consistent with the public interest.
		Under Section 7 of the NGA, FERC determines whether or not to issue certificates of public convenience and necessity authorizing natural gas companies to transport or sell gas.
	National Environmental Policy Act (NEPA)	Preparation of an Environmental Impact Statement.
Advisory Council on Historic Preservation (ACHP)	Comment on the project and its effect on historic properties under Section 106 of the National Historic Preservation Act (NHPA)	Comment on the undertaking and its effects on historic properties.
U.S. Army Corps of Engineers (COE)	Authorization for activities that will occupy, fill, or grade land in a floodplain, streambed, or channel of a stream or other waters of the United States under Section 10 of the Rivers and Harbors Act of 1899	Consider issuance of permit for placement of structures or work in, or affecting, navigable waters of the United States.
	Authorization to discharge dredged or fill material into waters of the United States under Section 404 of the Clean Water Act (CWA)	Consider issuance of permit for placement of dredge or fill material into all waters of the United States, including wetlands.
		Approval and coordination for disposal of dredge material.
U.S. Department of Commerce National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NMFS)	Consultation regarding compliance with Section 7 of the Endangered Species Act (ESA); the Magnuson-Stevens Fishery Conservation and Management Act; and the Marine Mammal Protection Act	Consult on marine and anadromous endangered and threatened species, essential fish habitat, and protected marine mammals.
U.S. Department of the Interior, U.S. Fish and Wildlife Service	Consultation regarding compliance with Section 7 of the ESA, the Migratory Bird Treaty Act, and the Fish and Wildlife Coordination Act	Consult on endangered and threatened species and migratory birds; general consultation regarding conservation of fish and wildlife resources.

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TABLE 1.3-1 (continued) Major Permits, Approvals, and Consultations		
Agency	**Permit/Approval/Consultations[a]**	**Agency Action**
FEDERAL (continued)		
U.S. Environmental Protection Agency (EPA) – Region 2	Section 404 of the CWA (veto power for wetland permits issued by the COE)	Oversee issuance of Section 404 permit.
	Section 402, CWA, National Pollutant Discharge Elimination System (NPDES) Permit	Review and issue permit for activities associated with pipeline and aboveground facilities construction.
	Clean Air Act permits for construction of a stationary source of air pollutant emissions and for operation of the source	Permitting authority delegated to the New York State Department of Environmental Conservation.
U.S. Department of Homeland Security, U.S. Coast Guard (Coast Guard)	33 Code of Federal Regulations (CFR) 127, Waterfront Facilities Handling Liquefied Natural Gas and Liquefied Hazardous Gas; Permission to Establish Aids to Navigation	Review waterfront facilities handling LNG; issue Letter of Recommendation.
	33 CFR 127, Ports and Waterways Safety Act (PAWSA)	Ensure navigation safety.
	The Maritime Transportation Security Act of 2002	Review project for compatibility with National and Area Marine Security Plans.
Federal Aviation Administration (FAA)	14 CFR Part 157, Section 1577.7(a)	Conduct aeronautical study of the proposed location of emergency helipad and prepare advisory determination.
STATE		
New York State Department of Environmental Conservation (NYSDEC)	Section 401 CWA, water certification certificate	Review and issue water quality certification.
	NPDES Permit	Review and issue NPDES Permit for hydrostatic test water discharge.
	State Pollutant Discharge Elimination System (SPDES) Stormwater Discharge Permit	Review and issue permit for discharge of stormwater generated during Project construction and operation.
	SPDES Industrial Permit	Review and issue permit for discharge of process wastewater generated during Project construction and operation.
	Solid waste registration	Review and authorize registration.
	Temporary water use permit	Issue permit for hydrostatic testing.

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TABLE 1.3-1 (continued) Major Permits, Approvals, and Consultations		
Agency	**Permit/Approval/Consultations[a]**	**Agency Action**
STATE (continued)		
NYSDEC (continued)	Preconstruction air permit	Review and issue permit-by-rule in lieu of Title V permit.
	Consultations regarding state-listed threatened and endangered species regulations and the Fish and Wildlife Coordination Act	Consult on state-listed threatened and endangered species that may be affected by the Project; general consultation regarding conservation of fish and wildlife resources.
	Hazardous Substances Bulk Storage Permit	Review and issue permit for bulk storage of non-petroleum hazardous substances.
	Petroleum Bulk Storage Permit	Review and issue permit for bulk storage of petroleum products.
New York State Parks, Recreation, and Historic Preservation, State Historic Preservation Office	Section 106, NHPA	Review and comment on undertakings potentially affecting cultural resources.
New York State Department of State (NYSDOS) Division of Coastal Resources	Federal consistency review with Coastal Zone Management Act (CZMA) program policies	Consider consistency with CZMA and New York and Long Island Coastal Management Programs.
New York State Office of General Services	New York Public Lands Law	Easement or lease for use of state-owned submerged lands.
New York State Department of Public Services (NYSDPS)	Safety advisory report pursuant to the NGA	Evaluate Broadwater Project relative to standards and plans for inspection and maintenance.

[a] Many of the permits listed provide agencies, the public, and other stakeholders the opportunity to review and comment on the Project (for example, FERC's NEPA process and COE's Section 10/404 Permit).

Section 7 of the ESA, as amended, states that any project authorized, funded, or conducted by a federal agency (for example, FERC) should not "jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species which is determined...to be critical" (16 USC Section 1536[a][2]). FERC, or the applicant as a non-federal party, is required to consult with the U.S. Fish and Wildlife Service (FWS) and NMFS to determine whether any species federally listed or proposed for listing as endangered or threatened, or their designated critical habitat, occur in the vicinity of the proposed Project. If, upon review of existing data or data provided by the applicant, FERC determines that these species or habitats may be affected by the proposed Project, FERC is required to prepare a biological assessment to identify the nature and extent of adverse impact and to recommend measures that would avoid the habitat and/or species, or would reduce potential impacts to acceptable levels. See Section 3.3.3.1 of this EIS for the status of the ESA review.

Section 106 of the NHPA requires FERC to take into account the effects of its undertakings on properties listed in or eligible for listing in the National Register of Historic Places (NRHP) – including

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prehistoric or historic sites, districts, buildings, structures, objects, or properties of traditional religious or cultural importance – and to afford the Advisory Council on Historic Preservation (ACHP) an opportunity to comment on the undertaking. FERC has requested that Broadwater, as a non-federal party, assist in meeting FERC's obligation under Section 106 by preparing the necessary information and analyses as required by the ACHP procedures in 36 CFR 800. See Section 3.8 of this EIS for the status of the NHPA review.

The CZMA calls for the "effective management, beneficial use, protection, and development" of the nation's coastal zone and promotes active state involvement in achieving those goals. As a means to reach those goals, the CZMA requires participating states to develop management programs that demonstrate how these states will meet their obligations and responsibilities in managing their coastal areas. In the state of New York, NYSDOS is responsible for reviewing federal agency actions and activities to ensure that they are consistent with New York's Coastal Management Program (CMP). For the Broadwater Project, the NYSDOS review would include an evaluation of the Project's consistency with the Long Island Sound CMP. Because Section 307 of the CZMA requires that activities associated with federal authorizations comply with and be conducted in a manner consistent with the enforceable policies of a management program, FERC requires that Broadwater seek a determination of CMP consistency for construction and operation of the proposed facility and associated vessel operations. Section 3.5.7.1 of this EIS addresses the CMP and the status of the consistency review.

1.3.3 Other Permits, Approvals, and Reviews

In addition to FERC, other federal agencies have responsibilities for issuing permits or approvals to comply with various federal laws and regulations. For example, the COE would issue permits under the Clean Water Act (CWA) and the Rivers and Harbors Act; EPA has regulatory authority under the CWA and the Clean Air Act (CAA); and the Coast Guard has responsibilities relating to LNG waterfront facilities under 33 CFR 127, the Ports and Waterways Safety Act, and the Maritime Transportation Security Act. The New York State Department of Environmental Conservation (NYSDEC) has been delegated the responsibilities under the CWA and CAA. Major permits, approvals, and consultations required for the Project are listed in Table 1.3-1.

The Energy Policy Act of 2005 (EPAct) and Section 3 of the NGA require that FERC consult with the U.S. Department of Defense (DOD) to determine whether or not proposed projects would affect training or activities on military installations. In a letter to the DOD dated January 18, 2006, we requested that DOD inform FERC of "any defense or military establishments in the project area that you believe may be affected by the project." We did not receive a response to that letter and have not received any comments or concerns from any branch of the military or any military installation in reply to our scoping notice issued on August 11, 2005 (see Section 1.4). We did receive a letter from the U.S. Navy indicating that it is coordinating its review with the Coast Guard (Kenny 2006). Since the DOD has not identified any effects on training or activities on military installations due to Project implementation, we currently conclude that the Project would not have an effect on military installations, and therefore, concurrence from the Secretary of Defense may not be required under EPAct. If we do not receive comments on the draft EIS from the DOD on this issue, we will notify the DOD of our conclusion in writing.

In its October 31, 2006 letter to NYSDOS, Broadwater indicated that a permit from the Federal Aviation Administration (FAA) would not be required for the proposed helipad since it would only be used for emergencies. After the detailed design of the emergency-use helipad is completed, the FAA would conduct an aeronautical study of the proposed location of the helipad and prepare and advisory determination.

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Additional state and local permits may be required for the onshore support facilities. However, as described in this EIS, the onshore support facilities proposed for use have been operating in a manner similar to that required for the Project and the required permits may be in place. Permitting requirements, if any, for the onshore facilities will be determined when Broadwater selects the onshore facility sites.

FERC encourages cooperation between applicants and state and local authorities, but this does not mean that state and local agencies, through applications of state and local laws, may prohibit or unreasonably delay the construction or operation of facilities approved by FERC. Any state or local permits issued with respect to jurisdictional facilities must be consistent with the conditions of any authorization issued by FERC.[7]

In addition, the NGA, as modified by the EPAct, requires that the Commission consult with the state in which an LNG terminal is proposed to be located regarding state and local safety matters. In December 2005, the governor of New York designated the New York State Department of Public Service (NYSDPS) as the state agency that FERC should consult with on safety and siting matters for the Broadwater Project. NYSDPS submitted its February 28, 2006 Safety Advisory Report to FERC. In the report, NYSDPS addressed state and local considerations for the Project and provided comments from the New York State Department of State (NYSDOS), the New York State Emergency Management Office, the New York State Department of Transportation, and the New York State Office of Homeland Security, as well as the comments of several local governmental entities (Suffolk County, the Town of Huntington, the Town of Riverhead, and the Village of Poquott).

The EPAct also stipulates that, before the Commission may issue an order authorizing an LNG terminal, it must "review and respond specifically" to the safety matters raised by the state agency designated as the lead for the state and local safety matters. Appendix A presents FERC's response to the NYSDPS advisory report for the Broadwater Project.

1.4 PUBLIC REVIEW AND COMMENT

On November 4, 2004, Broadwater filed a request with FERC to implement the Commission's pre-filing process for the Broadwater LNG Project. At that time, Broadwater was in the preliminary design stage of the Project and no formal application had been filed with FERC. The purpose of the pre-filing process is to encourage early involvement of interested stakeholders, facilitate interagency cooperation, and identify and resolve issues before an application is filed with FERC. On November 29, 2004, FERC granted Broadwater's request and established a Pre-Filing Docket Number (PF05-4-000) to place information filed by Broadwater and related documents issued by FERC into the public record. All of the information Broadwater filed with FERC prior to January 30, 2006 is in Docket Number PF05-04. Broadwater's application and all Project-related information filed on or after January 30, 2006 by Broadwater and others are in Docket Numbers CP06-54-000 and CP06-55-000.

On November 9, 2004, Broadwater submitted a Letter of Intent to the Coast Guard; on April 26, 2005, Broadwater submitted an amendment to its Letter of Intent. The first Letter of Intent initiated the Coast Guard's review of the safety and security of the proposed Project as a part of its preparation of an LOR that would be issued for the Project by the Captain of the Port of Long Island Sound.

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[7] See, for example, Schneidewind v. ANR Pipeline Co., 485 U.S. 293 (1988); National Fuel Gas Supply v. Public Service Commission, 894 F2d 571 (2d Cir. 1990); and Iroquois Gas Transmission System, L.P. et al., 52 FERC ¶ 61,091 (1990) and 59 FERC ¶ 61,094 (1992).

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Broadwater conducted a series of open houses on Long Island and in Connecticut in November and December 2004, and in April 2005 on Long Island. The purpose of the open houses was to inform agencies and the general public about LNG and the proposed Project, and to provide them an opportunity to ask questions and express their concerns. FERC and the Coast Guard participated in these open houses and provided information to the public on the joint review process of the Project.

On February 10, 2005, FERC formally introduced the pre-filing process to various Project stakeholders by issuing a notice entitled *Pre-filing Process Review, Broadwater Project, Docket No. PF05-4-000*. This Pre-filing Notice was sent to approximately 2,200 interested parties, including federal, state, and local officials; agency representatives; conservation organizations; and local libraries and newspapers. After the Pre-filing Notice, FERC issued its *Notice of Intent to Prepare an Environmental Impact Statement for the Broadwater LNG Project, Request for Comments on Environmental Issues, and Notice of Joint Public Scoping Meetings* (NOI). The NOI, which was issued on August 11, 2005, explained that FERC and the Coast Guard would be working together to evaluate the Project, with FERC assessing potential environmental impacts and the Coast Guard addressing safety and security issues. On August 16, 2005, the Coast Guard issued its *Notice, Request for Comments; Letter of Recommendation, Proposed Broadwater Project, Long Island Sound* in the Federal Register. This notice explained that the Coast Guard would be conducting an evaluation of the safety and security of the Project in response to the Letter of Intent it received from Broadwater.

FERC's NOI was sent to interested parties, including many of the same interested parties as the Pre-filing Notice, as well as individuals and organizations who provided comments on the Pre-filing Notice. All of the notices issued by FERC and the Coast Guard encouraged Project stakeholders and interested parties to provide input on environmental and safety and security issues that should be addressed during the Project review process. Both the NOI and the Coast Guard notice specifically requested comments by October 7, 2005; however, both FERC and the Coast Guard accepted comments throughout the time this draft EIS was being prepared. FERC received more than 4,200 comment letters in response to the Pre-filing Notice and the NOI. Although many comment letters addressed specific environmental concerns, the majority expressed opposition to the Project with either general comments or without stating specific environmental issues of concern.

The Coast Guard received more than 2,300 letters from concerned parties. The majority of those letters expressed concerns about health and safety, security, public access, and industrialization of the Sound.

FERC and the Coast Guard conducted joint public scoping meetings at two locations on Long Island and two locations in Connecticut in September 2005: Stony Brook, New York on September 13; Wading River, New York on September 14; East Lyme, Connecticut on September 20; and Branford, Connecticut on September 21. These meetings were held to provide the general public with an opportunity to learn more about the proposed Project and to participate in the analysis of the Project by commenting on issues to be included in the EIS and in the safety and security analysis. A transcript of these comments is part of the public record for the Project.

In addition to the public notice and scoping process discussed above, FERC conducted agency consultations, participated in several interagency meetings and conference calls, and met with concerned agencies and non-governmental organizations to identify issues that should be addressed in this EIS. The Coast Guard participated at many of these meetings; coordinated with FERC's LNG engineering group to review safety and reliability issues of Project design; conducted a Ports and Waterways Safety Assessment (PAWSA) workshop on May 3 and May 4, 2005; conducted a Harbor Safety Working Group meeting for the Broadwater LNG Safety Risk Assessment on December 15, 2005; and established a Sub-Committee of the Area Maritime Security Committee to provide input to the Coast Guard's review of

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potential risks to maritime security. In addition, FERC and the Coast Guard have coordinated regularly throughout the review process.

FERC staff conducted many site inspections of the Project area, including joint inspections with the Coast Guard. These included an aerial survey, several on-water surveys, and many surveys along the shorelines of Long Island, Connecticut, and Rhode Island.

Prior to issuance of the draft EIS, FERC prepared an advance draft EIS that was distributed in whole or part to the cooperating agencies (the Coast Guard, EPA, COE, NMFS, and NYSDOS) for review. Sections of the draft EIS were written with the cooperation and assistance of these agencies.

The draft EIS was mailed to the agencies, individuals, and organizations on the mailing list presented in Appendix B. It also was submitted to EPA for formal public notice of availability.

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