EXECUTIVE SUMMARY

The highlights of LAI's due diligence on market / economics, technology, environmental, and safety are presented by topical area.

Market & Economics

The objectives of LAI's market and economic analysis were threefold: first, to quantify the economic benefits reasonably ascribable to Broadwater over the ten-year planning horizon for gas utility and electricity customers on Long Island, in New York City and Rest of State; second, to compare the economic benefits associated with Broadwater to other potential pipeline enhancements and/or rival LNG import terminals proposed elsewhere in the Northeast; and, third, to identify noteworthy commercial considerations and risk factors that bear upon the economic merits / demerits of the Broadwater project.

North America is not running out of natural gas. It is just more difficult and therefore costly for gas producers to keep pace with demand. While natural gas supplies across North America are growing ever tighter due to accelerated maturation effects in conventional producing basins – in particular, the Gulf Coast and western Canada – new production will likely be very expensive in ultra deepwater in the Gulf of Mexico, the Mackenzie Delta in northern Canada, and Alaska. In the U.S., the brightest spot production-wise is unconventional production from the Rocky Mountains, but New York is too far away for production in the Rocky Mountains to matter much. Even stellar production sustained by Rocky Mountain producers over the next decade is unlikely to counterbalance the maturation effect on price and supply in conventional basins behind the pipelines that serve Long Island and New York City.

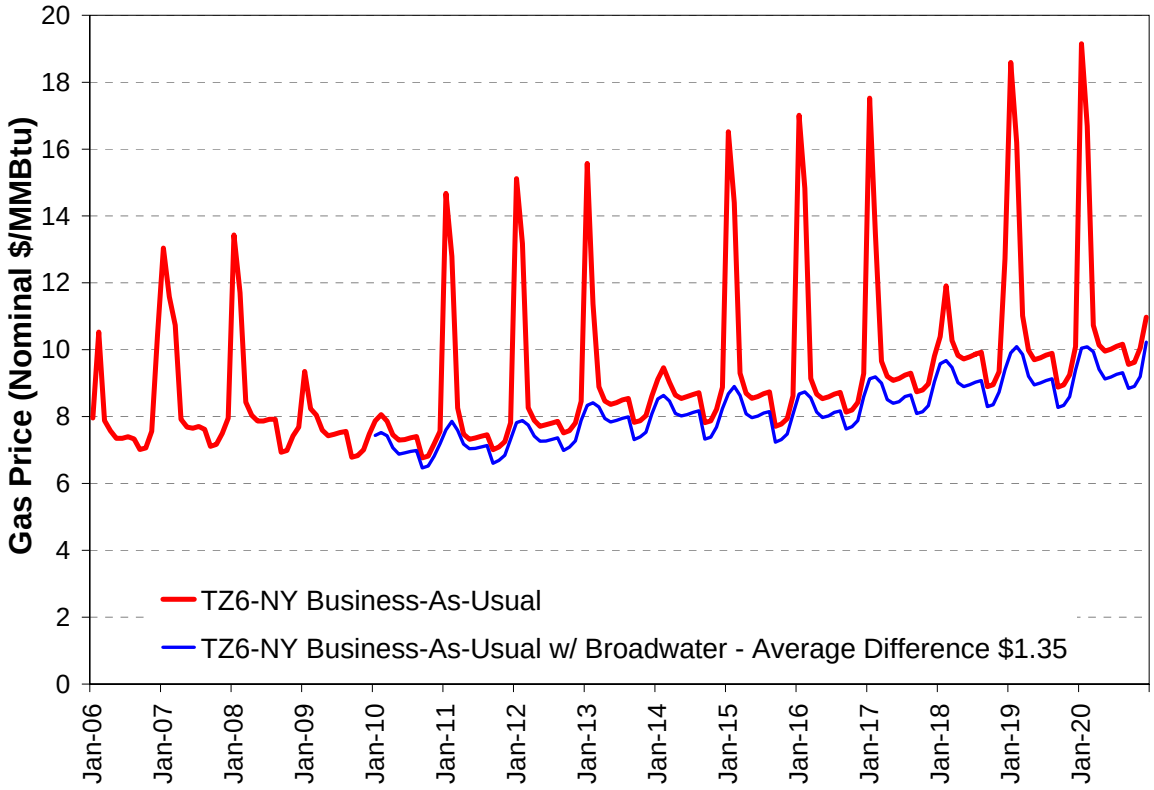
Whether or not Broadwater is developed, the U.S. will surely increase materially its reliance on LNG imports in order to plug the anticipated supply gap between production in North America and domestic demand. Among the crowded field of rival LNG projects proposed for the Atlantic seaboard, in LAI's opinion, most projects will likely be abandoned. No one knows for sure which ones will succeed. Due to the high capital intensity and geopolitical risks characteristic of the LNG "supply chain," we believe that the LNG import projects that are indeed commercialized will be those that can take advantage of the balance sheet strength of the global oil and gas companies.

Highlights of our assessment of Broadwater's market and economic impacts in New York State include the following:

- Absent Broadwater, natural gas prices on Long Island and in New York City are likely to remain high, generally indexed to crude oil prices, and broadly reflective of tight market fundamentals across North America. Natural gas prices are also likely to remain volatile, whipsawing during the heating season when pipelines serving New York are periodically constrained. Even if Broadwater is commercialized, its existence will not in and of itself immunize New York from global competition for premium fossil fuels. Assuming Broadwater regasifies 1 Bcf/d, natural gas prices will certainly be much lower on Long Island, in New York City, and Rest of State in relation to what they would otherwise be without a large-scale import terminal at Long Island's doorstep. Relative to LAI's

Business-as-Usual Case – that is, a long term energy future without Broadwater – when Broadwater is added to the resource mix we estimate that the average price of natural gas for two leading market-area indices over the ten-year forecast period would decrease by $1.35/MMBtu (Transco Zone 6 New York, or "TZ6-NY," shown in Figure ES1) and $1.61/MMBtu (Iroquois Zone 2, or "IGTS-Z2"), a reduction up to 17%. This average decrease in price is explained by the expected reduction in volatility resulting from Broadwater's location in the heart of the market center, as well as the heightened competition among rival production basins to serve New York's gas demand. Natural gas prices will also be lower in New Jersey and Connecticut. Prices will also be somewhat lower in other key market centers along the supply chain from the Gulf Coast to New York State, and from western Canada to New York.

Figure ES1 – Market Area Price Effect Attributable to Broadwater (TZ6-NY)



- Presently, New York State's natural gas supply is predominantly sourced 1,500 to 2,700 miles away in the Gulf Coast and Alberta, respectively. Con Edison and KeySpan rely on conventional underground storage in Pennsylvania at the Leidy and Ellisburg storage fields, and, to a lesser extent, in southern Ontario at Dawn. Broadwater's vast storage inventory, up to 8 Bcf, located in the heart of the market will surely reduce commodity prices as well as dissipate or, conceivably, eradicate gas price volatility for the foreseeable future. Due to Broadwater's storage capacity, we believe that natural gas prices would no longer be nearly as volatile throughout the planning horizon. The potential elimination of price volatility effects is explained by the expected absence of congestion effects along the big pipelines serving New York, in particular, Transco, Texas Eastern, and Iroquois. With Broadwater, we note one key market assumption,

namely, that New York's gas utilities do not subsequently relinquish their respective primary, long-haul entitlements from both storage centers and production areas to the NYFS.

- Long Island's total current and foreseeable energy requirements – both gas and electric – are much less than New York City's. If Broadwater is developed, it is likely that the majority of the benefits will flow physically and financially to New York City. From a physical standpoint, most of the gas from Broadwater will flow into New York City via Iroquois' Eastchester lateral from Northport to the terminus at Hunts Point. A substantial portion of Broadwater's daily output will be delivered to Long Island at the Northport power plant and at South Commack, the terminus of the Iroquois mainline, for redelivery through the KeySpan local distribution system. The remainder of Broadwater's daily production will flow via a reversal on Iroquois northward into Connecticut. Only about 20% of the total expected benefits are expected to reside on Long Island. On Long Island, LAI has estimated that over 70% of the benefits would be realized by electricity customers rather than gas utility customers.

- Broadwater is not needed now to ensure reliable energy supply for Long Island or New York City, but would clearly represent the most economic solution in the future to meet the region's robust energy demand growth. Absent Broadwater, the pipelines serving New York have been and can continue to be expanded so long as KeySpan, Con Edison, and their customers are willing to "foot the bill" for increased deliverability. A number of new pipelines are already on the drawing boards but await final authorization, for example, Islander East. If constructed – and that is a major challenge – these new conduits are likely to provide Long Island and, conceivably, New York City, with breathing room for the next decade to satisfy the region's critical need for pipeline delivery capability to ensure that people stay warm throughout the heating season and the power grid remains secure year-round. However, the all-in delivered cost of natural gas behind the new pipelines or pipeline expansions proposed for New York is an altogether different question, one that puts Broadwater in a favorable light.

- The economic benefits of the Broadwater Project have been differentiated by core (gas utility) and non-core (electric) demands for Long Island, New York City and Rest of State. Figure ES2 summarizes the present value of total core benefits for each sub-region from 2010 to 2020. Total benefits for core amount to $4.6 billion as follows: $1.9 billion for New York City (41%), $0.8 billion on Long Island (17%), and $1.9 billion for Rest of State (42%).

Figure ES2 – Gas Utility (Core) Benefits Attributable to Broadwater by Sub-Area (2010-2020)

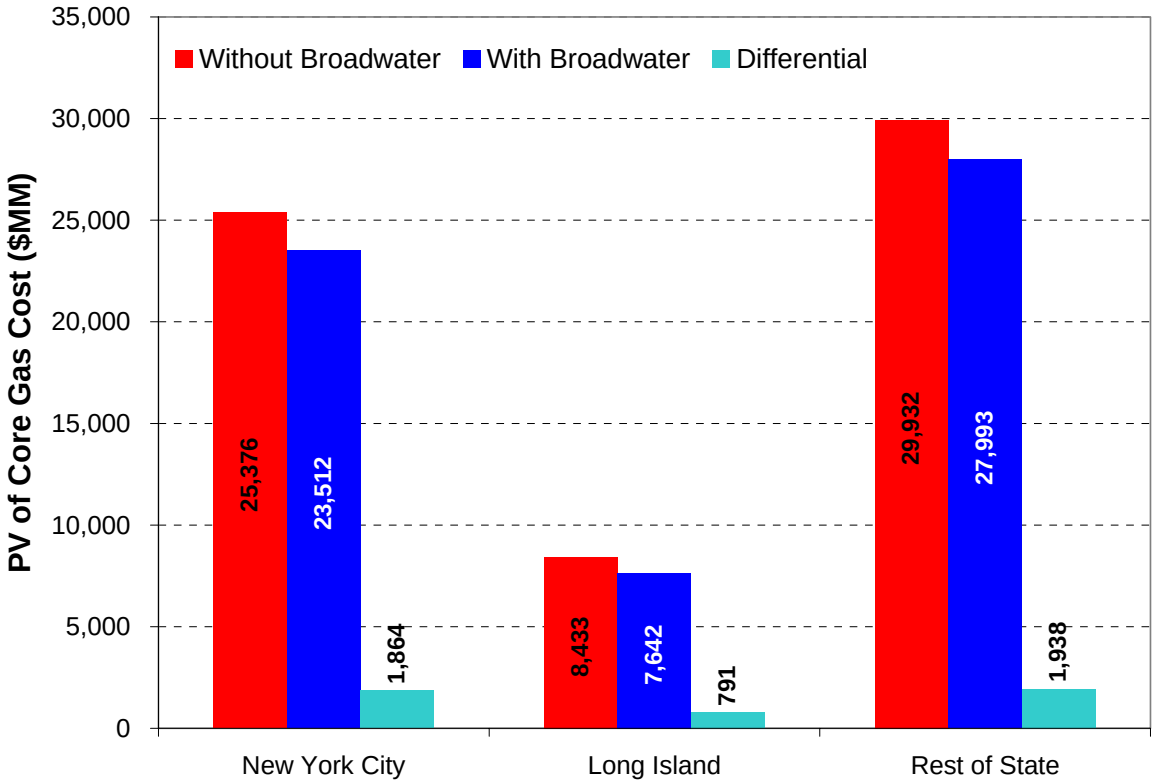


Figure ES3 shows the present value of non-core benefits for each sub-region from 2010 to 2020. Total benefits for non-core amount to $10.2 billion as follows: $4.4 billion for New York City (43%), $1.9 billion on Long Island (19%), and $3.9 billion for Rest of State (38%).

The total savings attributable to Broadwater are summarized in Table ES1 with and without an economic adjustment, called the multiplier effect, which takes into account secondary economic impacts from changes in employment, income and other variables. These savings are depicted graphically in Figure ES4 with the economic multiplier adjustment.

Figure ES3 – Electric (Non-Core) Benefits Attributable to Broadwater by Sub-Area (2010-2020)

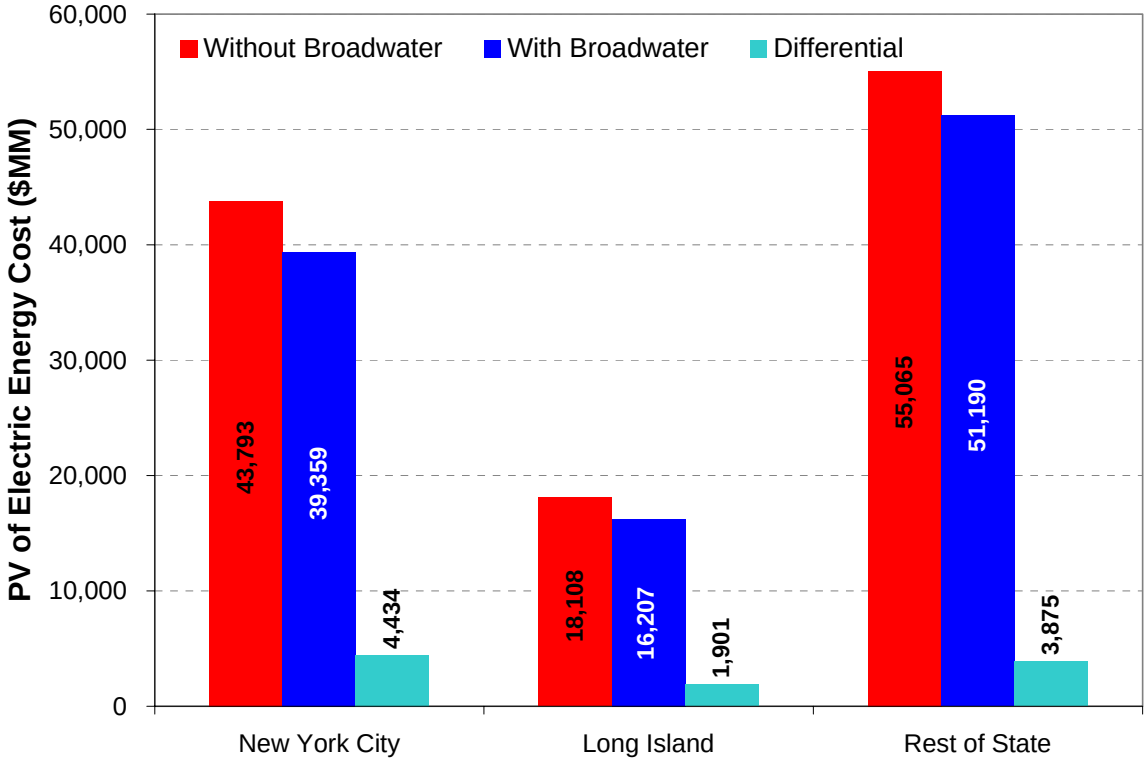
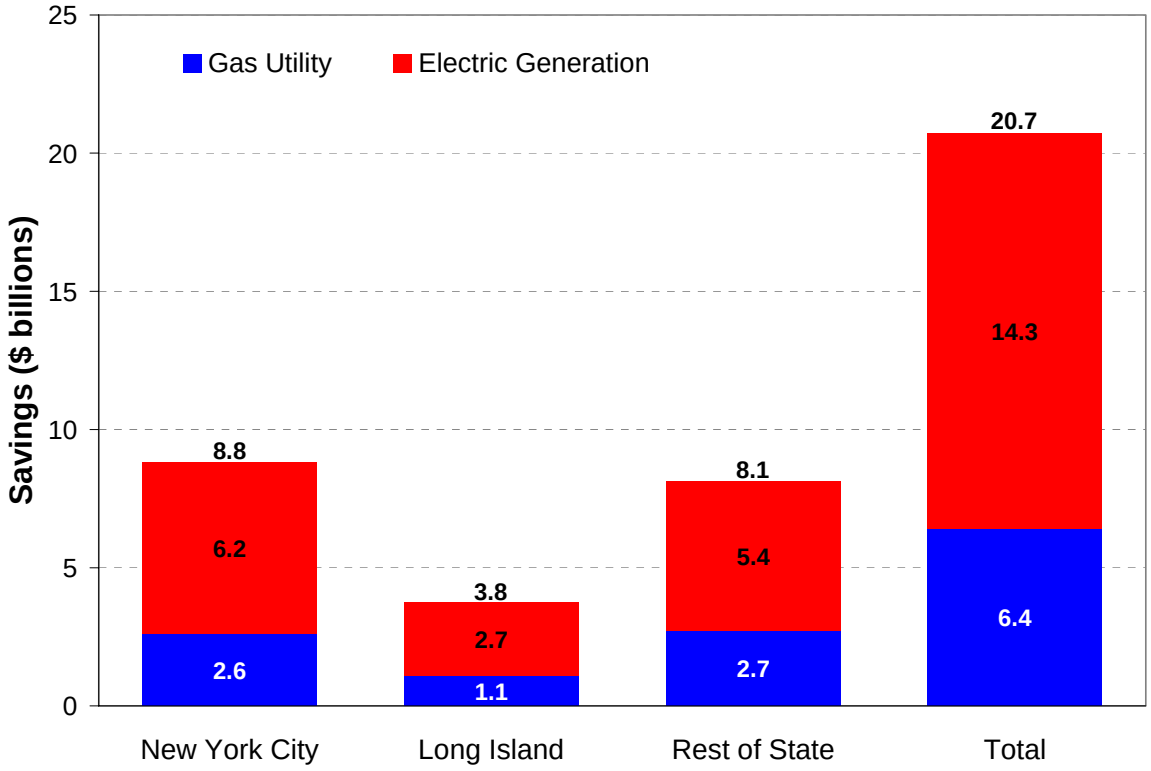


Table ES1 – Savings Attributable to Broadwater

	Savings without Multiplier Effect	Savings with Multiplier Effect
Long Island	$2.7 billion	$3.8 billion
New York City	$6.3 billion	$8.8 billion
Rest of State	$5.8 billion	$8.1 billion
Total	$14.8 billion	$20.7 billion

Figure ES4 – Economic Savings Attributable to Broadwater*



- In April 2005, Broadwater told LIPA's management and trustees that New Yorkers would save $6 billion from 2010 to 2020. Discussions between LAI and Broadwater revealed important structural differences between modeling techniques and assumptions. Broadwater's model was designed to analyze regional inputs on a high-level basis, and did not consider avoided gas price volatility, core versus non-core procurement patterns, income multiplier effects or potential economic benefits outside of Long Island and New York City. Also, Broadwater did not discount these savings to account for the time value of money. Had they discounted the savings, this number would have been much lower than $6 billion. LAI observes that Broadwater's representation in April 2005 to LIPA's Board of Trustees was stated in very conservative terms. On an apples-to-apples basis, LAI has estimated that expected savings in New York State will equal $21.6 billion, well above three times Broadwater's portrayal. In present value terms, this equates to $14.8 billion expressed in 2010 dollars.

- The total expected value to New York State, $20.7 billion – including the adjustment to account for benefits to the economy – requires a number of material adjustments to account for other benefits and costs, quantification of which was outside the scope of this study. Not included in LAI's estimated total savings are: (i) potential payments in lieu of taxes to "host" communities on Long Island, (ii) the value of potential commercial inducements from Broadwater to one or more anchor customers, (iii) environmental

* Adjusted for economic multiplier effect

benefits associated with the increased use of natural gas in lieu of oil for power production, including one or more generation asset repowering(s) on Long Island, in New York City or Rest of State that might not otherwise occur, and (iv) miscellaneous capital costs potentially borne by gas utilities and power generators on Long Island and in New York City for the sake of reliability. Regarding this last item – miscellaneous capital costs borne mainly by KeySpan and Con Edison – Broadwater's daily dispatch regime would materially change the pattern of gas flows on Long Island and New York City. Both KeySpan and Con Edison may therefore need to commit significant capital resources to maintain network reliability in response to much higher receipts at different gate stations on the NYFS, the costs of which would ultimately be recovered from retail gas and electric customers. Other costs borne by KeySpan, Con Edison and power plants to ensure that Broadwater's gas supply is interchangeable with pipeline rendered supply must also be counted. Other costs may be borne by the region's gas utilities to ensure that processes at the existing peak-shaving LNG facilities in Suffolk County, Queens and Brooklyn are not impaired as a result of commingling Broadwater's regasified supply with pipeline-rendered supplies from Canada and the Gulf Coast.

- Another economic benefit is associated with both KeySpan's and Con Edison's ability to reduce the total cost of pipeline transportation by releasing temporarily their valuable pipeline and storage entitlements on Transco and Texas Eastern. Margin recoupment through capacity release has the potential to be material, but we have not attempted to measure it for purposes of this analysis.

- LAI compared how Broadwater stacks up against other plausible infrastructure additions to serve growing gas demand on Long Island and New York City. When we tested how natural gas prices on Long Island and New York City change without Broadwater, but with other postulated infrastructure improvements, including a rival LNG import terminal proposed in New Jersey, we found that Broadwater was by far the best economic outcome for New York State. Central to this determination is the reasonable expectation that in order for Broadwater to capture market share, Broadwater will need to be a price taker, not a price setter. In LAI's opinion, Broadwater will sell its inventory of natural gas under avoided cost principles, that is, Broadwater's price of natural gas will need to beat what its customers would otherwise pay to deliver natural gas to Long Island or New York City. Otherwise, Broadwater will not sell very much natural gas. Under the array of factor input assumptions used by LAI in our quantitative analysis, we observe that the addition of the first phase of the proposed Millennium Pipeline and downstream improvements on both Algonquin and Iroquois will not be expected to yield a significant reduction in gas prices on Long Island or New York City. The addition of these upstream pipeline segments would confer vital reliability benefits, however. Other postulated pipeline expansions onto Long Island and New York City would be expected to reduce gas prices in the market area by $0.62/MMBtu, only about one-third the reduction on Long Island attributable to Broadwater. The impact of BP's proposed Crown Landing LNG import terminal in New Jersey was about the same as the pipeline expansions we tested**.** While other potential LNG import terminals such as Crown Landing or one of several new import terminals proposed in New England will likely reduce energy prices in New York, the net impact for New Yorkers is not remotely comparable to that of Broadwater. Moreover, rival LNG import terminals' prospects for success are a

wildcard. Importantly, our findings regarding the economic impact of other contenders in lieu of Broadwater do not incorporate any of the high fixed annual payments payable by utilities and power generators associated with reserving space on new or expanded pipelines into the market center.

Unless Broadwater is contractually obligated to meet commitments on Long Island and in New York City and, perhaps, other adjacent markets, Broadwater, or its marketing affiliate, may divert cargoes destined to New York, electing instead to move charter vessels to the most lucrative spot market across the Atlantic Basin. Until worldwide liquefaction capability in exporting countries catches up to the demand for LNG, competing markets across the Atlantic Basin constitute heightened competition for spot cargoes, in particular, the United Kingdom, Spain, and a number of other European Union countries. Certainly, the best way to assure Broadwater's operating regime around 1 Bcf/d is to require performance through contractual safeguards oriented around a "take-if-tendered" commercial structure.

Technology

LAI's technology study objectives were threefold: first, to evaluate the various types of offshore LNG facilities; second, to identify technology limitations associated with the FSRU, its major components, and the yoke mooring system; and, third, to assess operational issues with the FSRU and LNG transfer.

Offshore LNG technology builds on the industry's record of safety and reliability established over the past four decades. At present there is no FSRU technology on the scale proposed by Broadwater operating anywhere in the world. Nevertheless, each of the essential components of Broadwater's FSRU has been used safely and reliably in both offshore petroleum and onshore LNG terminal operations around the world. LAI examined each type of offshore LNG facility proposed or operating in the U.S. These include gravity-based structures, a modified LNG tanker unloading to a submerged turret loading buoy and alternative FSRU design technology. LAI evaluated the essential operating components of the FSRU from the perspective of historical use and suitability in Long Island Sound. We evaluated multiple components of Broadwater's proposed technology, namely, containment, regasification, cargo transfer, emergency shutdown, boil-off, custody transfer, and mooring.

Highlights of our assessment include the following:

- There is no evidence of fatal flaws in the FSRU design. Broadwater's functionality and design combines existing and proven technology from onshore LNG terminals and LNG vessels. In LAI's opinion, Broadwater will benefit from the technology progress and knowledge gained from over forty years of reliable performance in terms of shipping, storage, and terminal operations around the world. The containment system, individual tank design, and related hull design will undergo rigorous evaluation by the American Bureau of Shipping (ABS) to ensure compliance with all applicable codes and guidelines.

- The FSRU includes multiple system redundancies to ensure reliable and safe operation. Examples of system redundancies include an additional gas turbine for electricity

generation, multiple pumps in storage tanks, excess vaporization capacity, an additional loading arm and additional condensers and liquid pumps for the vaporizers.

- Offshore cargo transfers are limited by the relative motion between the FSRU and the LNG carrier. LNG deliveries will not be scheduled unless there is a 24-hour weather window within operating limits corresponding to wind speeds less than 33 knots and waves less 6.6 feet. During cargo transfer, the FSRU loading arms are connected to the receiving flanges of the LNG carrier. If weather were to take a sudden and rapid turn for the worse, that is, unanticipated choppy seas and high winds materialize after cargo transfer has commenced, the simultaneous movement of the FSRU and LNG carrier has the potential to unduly stress the loading arms on the FSRU. In such an event, the emergency shutdown system would be activated when the relative motion between the two vessels exceeds threshold tolerances. In LAI's opinion, the risk involved in offshore cargo transfer can be competently managed through the adherence to prudent operational procedures.

- The scale of Broadwater's storage system significantly exceeds the storage capacity of LNG carriers currently in service or likely to begin service this year or next. However, Broadwater's eight individual storage tanks of 1 Bcf per tank are similar in size to those planned for new, large LNG vessels currently under construction in shipyards in Korea, Japan and France.

- Broadwater's yoke mooring system is designed to permanently tether the FSRU to the mooring tower. The yoke mooring system is a critical Project component: both reliability and safety depend on the integrity of the yoke mooring system, as there will not be an anchor on board the FSRU in the event of failure. The yoke mooring system is designed to withstand a Category 5 hurricane – comparable to the force of Hurricane Katrina that devastated the Gulf of Mexico in August 2005. The high waves and wind of a Category 5 hurricane would be more severe than a "100-year storm" on Long Island. The worst storm ever recorded on Long Island occurred in 1938, a Category 3 hurricane. Aside from weather-related risk, either a terrorist attack or an accidental vessel collision with the yoke mooring system could conceivably release the FSRU from its mooring. Although the FSRU would have thrusters to maintain a constant heading, its motion would generally be controlled by tug boats. Tugs cannot operate reliably when waves are greater than 2 meters (6.6 feet). Therefore, the yoke mooring system must be designed for maximum safety. Of critical importance, the area around the yoke mooring system must be protected from incoming vessels by an adequate safety zone.

- In the final analysis, all technology risk will be borne by Broadwater, not market participants doing business on Long Island or in New York City or Rest of State.

Environmental

LAI's environmental review objectives were four-fold: first, to identify the most significant potential impacts on marine plant and animal resources in Long Island Sound resulting from the construction and operation of the Project; second, to identify the potential impact on recreational and commercial fishing and boating associated with the construction and operation of the

Project, including the delineation of Safety Zones around the FSRU and the LNG carriers; third, to identify feasible mitigation methods applicable to Broadwater in the context of how such mitigation methods have been implemented for similar projects; and, fourth, to evaluate the incremental impact of the Project relative to existing infrastructure, commerce, and other uses of Long Island Sound. LAI's review does not constitute an independent environmental impact statement. We did not perform an independent compliance review or impact assessment with respect to air emissions or water discharge associated with operation of the FSRU and the LNG carriers. If permits are issued by the authorized federal and state agencies, we assume that conditions attached to air permits, the State Pollutant Discharge Elimination System (SPDES) permit, and other permits would be protective of, and prevent deterioration of air quality and marine resources. The decrease in natural gas prices ascribable to the Project may promote repowering of existing steam plants on Long Island and/or conversion of core heating load from oil to gas, thus enabling a net reduction in emissions on NO_x, SO_2 and CO_2. LAI has not quantified this potential benefit. Furthermore, LAI takes no position concerning the so-called "industrialization of Long Island Sound." This issue must be decided by state and local officials.

Highlights of our environmental assessment include the following:

- The selection of the Project site avoids sensitive resources that are located in the nearshore area of Long Island Sound, including shellfish beds, marine bird breeding grounds, and tidal wetlands. The Project site also avoids disturbance of the most heavily contaminated sediments, which tend to be along coastal areas and in the western portion of Long Island Sound. On both the Long Island and Connecticut shorelines, there are no significant environmental impacts associated with the FSRU and the pipeline lateral connecting the FSRU to the Iroquois mainline.

- Impacts associated with pipeline construction are well-documented from other marine infrastructure projects in Long Island Sound. The method proposed by Broadwater for excavation of the pipeline trench using a subsea plow is the least environmentally damaging. However, benthic invertebrates in the areas of direct impact from the subsea plow and buried by sidecast spoils will likely be killed. Larger, more mobile invertebrates and fish will likely be able to avoid the disturbance. Avoidance of near-surface bedrock substrate eliminates the need for blasting, which has the highest impact to marine resources. Some finfish species may be susceptible to barotrauma from pressure waves during pile driving for the yoke mooring system tower, but the effects will be short-term and localized. Changes in water quality due to increased turbidity during trenching for the pipeline and yoke mooring system construction will be short lived. Time of year restrictions will help minimize effects to commercially important species such as lobster, and rare, threatened or endangered species such as whales and turtles. Although the area of the seafloor that is expected to be disturbed during construction is over two thousand acres – approximately 0.26% of the total area of Long Island Sound – numerous scientific studies have documented the recovery of benthic marine resources in Long Island Sound and similar environments following disturbance. For other marine infrastructure projects, studies have shown that recolonization occurs within a period of weeks to months, with total recovery to the original condition taking several years.

- Some of the potential operational impacts can be categorized as low risk-high impact. These include contaminant release through fuel spills, whale / turtle entanglement or collisions with marine traffic. These potential impacts are not unique to Broadwater, and are generally mitigated through best management practices and spill prevention, control and countermeasure plans.

- The FSRU mooring tower will alter approximately 13,000 square feet (about 0.3 acres) of sea bottom within the four legs of the structure, with an additional 5.7 acres of shading beneath the FSRU. The FSRU's draft of 40 feet leaves approximately 53 feet of water column underneath the hull to the mudline. Like a weathervane, the FSRU is free to pivot around the mooring tower. Hence, the shaded area will not be fixed, thus minimizing the potential for a zone of oxygen reduction underneath the FSRU. The FSRU and associated Safety Zone would create a different and diverse community underneath the FSRU and on the mooring tower. We understand that the area associated with the Safety Zone will be inaccessible to commercial and recreational boating and fishing for Broadwater's life, presumably decades. Because commercial and recreational fishing will be excluded from the vicinity of the FSRU, it is possible that a *de facto* marine protected area will be created around the Project.

- The design and operation of the FSRU's water intake structures are intended to minimize mortality of ichthyoplankton (fish eggs and larvae) and adult fish by impingement and entrainment. Thermal impacts above applicable criteria from cooling water discharge from offloading LNG carriers are expected to be limited to a small localized mixing zone, 0.22 acres or less, between the FSRU and the LNG carrier. No ballast water discharge will be allowed for the LNG tankers within Long Island Sound, reducing the potential for invasive species introduction.

- Socioeconomic effects during construction include the inability to access commercial and recreational boating and fishing areas, fishing and lobster gear loss, and potential loss of income for lobster and fin fishermen unable to relocate their effort away from the construction activities. Restricting construction to the October through April window will reduce conflicts with recreational fishing and boating; Broadwater anticipates construction to occur during this time window only, over a two-year period. The FSRU and the associated Safety Zone will cover an area of roughly 1.5 square miles. Broadwater would displace up to five lobster fishermen who currently set pots within that area. Up to twelve fishermen reportedly trawl the area. The actual area lost would be greater for those trawlers who utilize established east / west trawl lanes, because the Safety Zone restriction cuts off access to a greater portion of the lane. Interference with the established east / west trawl lanes could result in fishing conflicts and reduced catches. Broadwater acknowledges that compensation for revenue losses and potential gear losses to commercial fishermen is necessary. Such compensation could be administered either through the State acting as a trustee, a fishermen's association or another third party.

- The FSRU was sited to avoid the predominant east / west and north / south shipping channels and ferry routes in Long Island Sound. However, some vessels that utilize the

east-west shipping channel located through the middle of the Sound would need to modify their routes to avoid the Safety Zone around the FSRU.

- Broadwater anticipates that 2 to 3 LNG cargo vessels per week will transit the Sound and dock at the FSRU. This represents an increase of less than 1% of the total commercial traffic currently operating in Long Island Sound, but, more importantly, an increase of 15% of large draft commercial traffic, *i.e.*, greater than 19 feet. On a tonnage basis, LNG imports would represent an increase of about 36% over the tonnage of commodities currently landed or exported through Long Island Sound ports. However, this percentage does not consider the extent to which LNG vessels would displace some of the barge and tanker traffic that currently delivers oil to New York for heating and power production. Petroleum products (other than LNG) currently constitute the largest portion by tonnage of total annual imports into Long Island Sound ports.

- LNG cargo vessels would be the largest vessels transiting the Sound. However, the LNG carriers will utilize the central east-west shipping lane where visibility from the shoreline will be minimized. LNG cargo vessels and their associated Safety Zone will interrupt marine traffic for a period of up to approximately 15 minutes as they traverse The Race. The Coast Guard will be responsible for developing and implementing a traffic management plan.

Safety

The objectives of LAI's safety review were fourfold: first, to assess the hazards associated with an offshore LNG storage facility based on existing scientific studies and reports; second, to assess the impact of an LNG spill from an accidental or intentional event; third, to evaluate the definition of hazard zones based on safety zones established or proposed for other LNG projects; and fourth, to review Broadwater's Resource Report on Safety and Reliability in its application to FERC. Importantly, we note that LAI's safety review does not encompass any information that Broadwater has provided government entities on a Privileged and Confidential basis, or other documents considered "Critical Energy Infrastructure Information" or "Sensitive Security Information" at FERC.

There is no other offshore storage and regasification facility like Broadwater. There is no safety record for a facility equal to or substantially similar to Broadwater for purposes of safety analysis. However, LNG vessels have sustained an excellent safety record over the last forty years. In contrast to the number of crude oil spills, including several catastrophic events, there has never been an LNG cargo tank breach of any type despite several LNG groundings around the world since the 1970s.

The most serious potential LNG hazard is thermal radiation resulting from a pool fire or the ignition of a vapor cloud. Thermal radiation is light emitted from the surface of an object due to its temperature. The power of the thermal radiation per unit area, also called the "heat flux," is conventionally expressed in units of kilowatts per meter squared (kW/m^2). In this case, these units have nothing to do with electricity, but instead express the amount of thermal radiation over a given area. For reference, the average radiation from the sun reaching the Earth's atmosphere is 1.4 kW/m^2. At the edge of a pool fire, the thermal radiation exceeds 220 kW/m^2. The impact

on humans from thermal radiation depends both on the intensity of the radiation and the exposure time. According to the National Fire Protection Association, an incident heat flux level of 5 kW/m^2 is recommended as the design level that should not be exceeded in areas where more than 50 people might assemble. 5 kW/m^2 is also the permissible level for emergency operations lasting several minutes with appropriate clothing. No pain has been shown for thermal fluxes less than 1.7 kW/m^2 regardless of exposure time. LAI considers 2 kW/ m^2 to be the thermal flux level that should be used as the limit for calculating safe distances from an LNG pool or vapor fire. Table ES2 shows the type of damage that occurs from different levels of heat flux based on an average 10-minute exposure time.

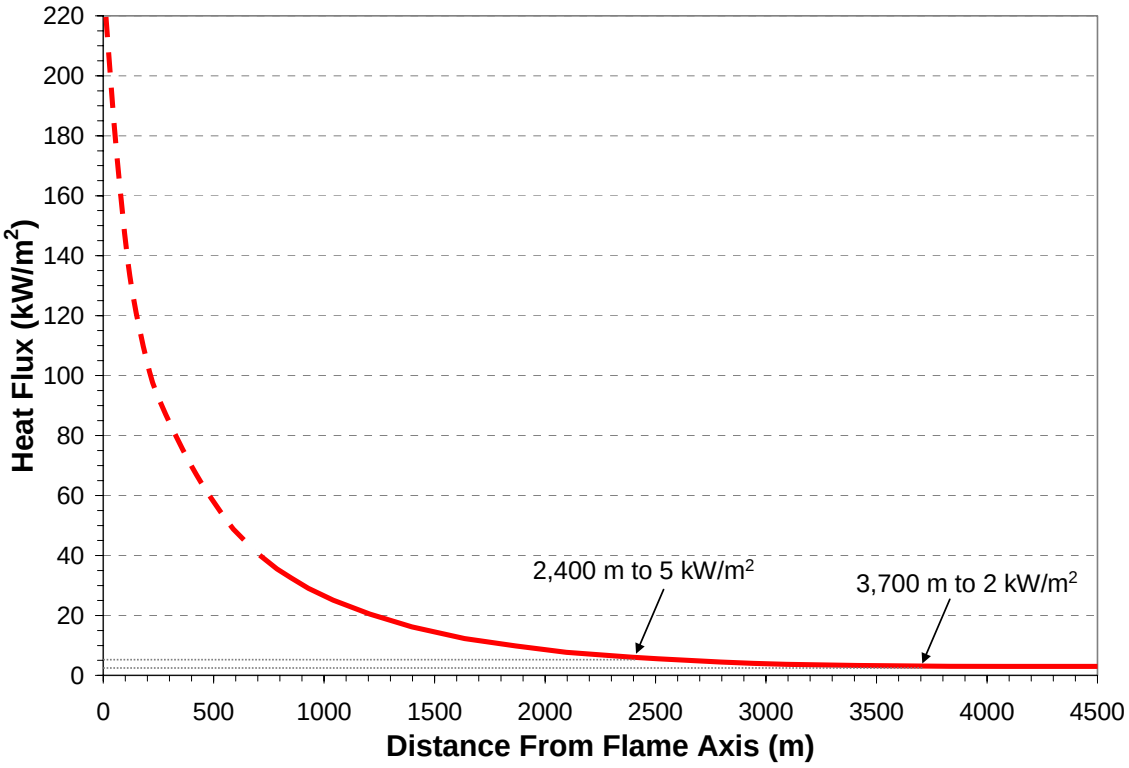
Table ES2 – Thermal Radiation Damage Levels*

Incident Heat Flux (kW/m^2)*	Type of Damage
35-37.5	Damage to process equipment including steel tanks, chemical process equipment or machinery - third degree burns, lethal 50% of the time for a person wearing average clothing
25	Minimum energy to ignite wood at indefinitely long exposure without a flame
18-20	Exposed plastic cable insulation degrades – second degree burns, lethal 1% of the time for a person wearing average clothing
12.5-15	Minimum energy to ignite wood with a flame; melts plastic tubing
5	Permissible level for emergency operations lasting several minutes with appropriate clothing
1.7	No pain regardless of exposure time

Computer models calibrated by limited experiments have been used to estimate how far from a pool fire the resultant heat flux drops to 5 kW/m^2 or less. Model results vary depending on the assumptions and the initial conditions at the time of a postulated spill. In performing this review, LAI relied on the Sandia report, Sandia's assessment of the Cabrillo Port Draft Environmental Impact Report (DEIR), and many other relevant documents. The Cabrillo Port project proposes an FSRU similar to Broadwater 14 miles off the California coast. Sandia calculated heat flux as a function of distance for a possible spill scenario off the coast of southern California. Figure ES5, from Sandia's review of Cabrillo Port, is an example of how far from the edge of the fire the radiation levels fall below 5 kW/m^2. In this case, a minimum distance of 2.4 km (1.5 miles) is required for the heat flux to drop to 5 kW/m^2. An additional 1.3 km (0.8 miles) is required to reach a safer level of 2 kW/m^2. Therefore, people and property outside 3.7 km (2.3 miles) should be within the safer radiation levels.

* Based on Sandia Report and other fire safety documents.

Figure ES5 – Pool Fire Calculation (Cabrillo Port)



Highlights of LAI's safety assessment include the following:

- Broadwater's location, about nine miles from the closest shore, minimizes the hazards to the public associated with either an accident or a catastrophe at the FSRU. Broadwater's homeland security experts assert that the FSRU is likely an unattractive terrorist target because any incident would cause few casualties and would not be very accessible for extensive media coverage. Arguably, the FSRU is a difficult terrorist target with a comparatively low probability of success. Nonetheless, we note that the maximum number of crew on board the FSRU at any one time would be approximately 30 individuals. In the event of a catastrophe, we believe that the FSRU is too far from either shoreline to affect the Long Island or Connecticut population.

- The risk of an accident while the LNG carrier is transiting The Race appears very low although the consequences could be high. Elsewhere in the U.S., LNG carriers have regularly transited both high and low density population centers without event for decades. Although the LNG carrier route comes within approximately one mile of land at The Race, an experienced pilot familiar with the route will have boarded the FSRU before it enters the Sound. The USCG will then escort the carrier to the FSRU. Both the USCG and Broadwater are eager to schedule passage during periods which avoid conflict with commercial and recreational vessel traffic, in particular, late night. Furthermore, the LNG carriers will not enter the Sound unless there is a favorable 24-hour unloading weather window within the operating limits corresponding to wind speeds less than 33 knots and waves less than 6.6 feet.

- Safety zones for offshore LNG projects are based on modeling of LNG spills over water. There has never been a large, offshore LNG spill over water – either accidental or experimental. LNG spill experiments conducted by scientists have been limited to volumes that constitute a small percentage of what might conceivably be released under any scenario. In LAI's opinion, scientists' inferences from controlled LNG spills are highly theoretical and therefore subject to uncertainty. LAI to date has not encountered any experimental data that counters the recommended safety zone for the Project. DOE's current study involving large-scale LNG fire experiments may further reduce uncertainties concerning heat impact distances.

- Minor hazardous events such as LNG leaks on the FSRU or the LNG carrier are likely to occur from time to time. The FSRU and tugs would be equipped with firefighting equipment, and we expect that the FSRU and LNG carrier crew would be highly trained to handle such emergencies. Nevertheless, cryogenic damage to crew or equipment could take place. Escalation of minor hazards is conceivable under extremely sudden and difficult weather conditions, but improbable with the type of emergency response training that is required. More serious hazardous events, such as release during LNG transfer events, are unlikely. If such a hazardous event were to occur, a pool fire or a minor vapor cloud could ensue. Broadwater's emergency shutdown system will limit the size of a spill and therefore minimize the probability of escalation.

- The most serious hazardous event would involve a collision between a vessel transiting Long Island Sound and the LNG carrier or the FSRU. The USCG has proposed a Safety Zone around the FSRU with a 1.1 km radius (0.68 miles). They have also proposed a moving safety zone around the LNG carrier while it transits the Sound that extends 3.7 km (2.3 miles) in front of the carrier, 1.85 km (1.15 miles) behind, and 0.69 km (0.43 miles) on either side. These Safety Zones will increase the navigational safety and reduce the likelihood of an accident or intentional attack. Furthermore, most of the vessels transiting Long Island Sound are neither large enough nor traveling with the speed required to penetrate the double hull of the FSRU or the LNG carrier.

- In the event of a pool fire, the thermal radiation could result in loss of life on the FSRU and might harm vessels and occupants in the area surrounding the FSRU. A pool fire could cause escalation to a multiple tank release, but it would take hours for all the LNG to be released. A worst-case scenario involving the total loss of the FSRU is conceivable, but all the LNG on board would not be instantaneously released. In the event of a worst-case scenario, the existing body of scientific knowledge indicates that the inhabitants of Long Island and Connecticut are far enough away to avoid burns through exposure to high levels of thermal radiation.

- Unignited vapor clouds are extremely unlikely to travel more than 2 miles without encountering an ignition source, such as a recreational, commercial or fishing boat. Near the FSRU, an unignited vapor cloud could lead to asphyxiation of crew members or other emergency personnel. Any *intentional* initiating event will almost certainly provide an ignition source and therefore not lead to a diffusing vapor cloud. Once the vapor cloud is ignited, the flash fire will burn back to the spill source, *i.e.*, presumably the hull of the FSRU.

- A secondary hazard that could damage the FSRU is a rapid phase transition. This type of explosion is caused by LNG pouring into warm seawater and vaporizing very quickly due to heat transfer. This rapid expansion from the liquid to the vapor state causes large overpressures. Rapid phase transitions are localized in the vicinity of the LNG leak and may cause some structural damage to the LNG carrier or the FSRU. Although rapid phase transitions on their own do not involve a fire, they may increase the rate of LNG pool spreading and the size of a vapor cloud that could subsequently ignite.

- LIPA asked LAI to estimate the impact zone to 2 kW/m^2 since a radiation flux of 5 kW/m^2 is only a permissible level for emergency operations lasting several minutes with appropriate clothing. Discussions with fire safety engineers and a review of the engineering literature led to the choice of 2 kW/m^2 as a "safe" level of radiative flux. LAI found the impact zone to 2 kW/m^2 would extend 6 km (3.7 miles) around the FSRU for a credible worst-case scenario. Therefore both shorelines would effectively be buffered by approximately 5 miles.