UNITED STATES ARMY CORPS OF ENGINEERS

BROADWATER ENERGY LIQUEFIED NATURAL GAS PROJECT

COMMENTS OF ATTORNEY GENERAL RICHARD BLUMENTHAL OF CONNECTICUT

Richard Blumenthal, Attorney General of the State of Connecticut, hereby submits these comments in opposition to the application of Broadwater Energy LLC (Broadwater) for a permit from the United States Army Corps of Engineers (Corps) under Section 404 of the Clean Water Act (CWA), 33 U.S.C. § 1344.

SUMMARY

The Broadwater Energy Liquefied Natural Gas (LNG) Project fails to meet the minimum standards of Section 10 of the Harbors and Rivers Act and Section 404 of the Clean Water Act because critical studies of important aspects of the project have not been completed or, in some cases, not even started, and parts of the project rely on technology and systems that do not yet exist anywhere in the world. For example, the design standards for the critical anchoring system have not been completed. Hurricanes Katrina and Rita destroyed 50 oil platforms and drill rigs in the Gulf of Mexico in 2005 and new design standards for anchoring systems to better withstand similar storms are still in development, and have not been approved. Non-existent plans cannot be studied and evaluated, as the law requires. This project should be withdrawn until necessary studies can be properly completed.

Further, even in its incomplete form, the record established by the Federal Energy Regulatory Commission (FERC) in the Draft Environmental Impact Statement (DEIS)

released November 17, 2005, plainly establishes that the Broadwater proposal threatens immense damage to human health and safety and the critical environment of Long Island Sound, a precious national resource. The project raises the clear and present danger of catastrophic damage to human life, the environment, and commercial and recreational use of the Sound. In the face of the clear facts, the DEIS for this project comes to the unsupportable conclusion that the risks can be mitigated or minimized and therefore this project can proceed.

Further, Section 404 *requires* the Corps to deny a permit for a project if less damaging alternatives exist. 33 U.S.C. § 1344(b)(1); 40 C.F.R. § 230.10(a). While the Northeast needs additional supplies of clean energy, there are far safer and sounder ways to obtain it. Numerous other projects are currently under review by FERC, including new major pipelines and safer and environmentally less damaging offshore terminals in New Jersey and Maine. The alternatives analysis contained in FERC's DEIS, however, does not consider all reasonably possible alternatives for new clean energy supplies for the Northeast and does not evaluate the most prudent, safest, least damaging proposal(s) necessary to ensure adequate natural gas supplies. Therefore, the Corps lacks an adequate administrative record upon which to issue a Section 404 permit.

1. Interests of the State.

The Connecticut legislature has been very clear -- the health of the ecosystem of the Long Island Sound is critical to the State and unchecked development and poorly-sited infrastructure is unacceptable.

> The General Assembly finds that the growing population and expanding economy of the state have had a profound impact on the life-sustaining environment. The air, water, land and other natural resources, taken for granted since the

> settlement of the state, are now recognized as finite and precious. . . . Therefore the General Assembly hereby declares that the policy of the state of Connecticut is to conserve, improve and protect its natural resources and environment and to control air, land and water pollution in order to enhance the health, safety and welfare of the people of the state.

Conn. Gen. Stat. § 22a-1.

The legislature has done more, expressly defining the policy of the state and making numerous legislative findings, including the following:

> (1) The waters of Long Island Sound and its coastal resources . . . form an integrated natural estuarine ecosystem which is both unique and fragile;
> (2) Development of Connecticut's coastal area has been extensive and has had a significant impact of the Long Island Sound and its coastal resources; . . .
> (5) The coastal area is rich in a variety of natural, economic, recreational, cultural and aesthetic resources, but the full realization of their value can be achieved only by encouraging further development only in suitable areas and by protection of those areas unsuited to development;
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> …
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> (7) Unplanned population growth and economic development in the coastal area have caused the loss of living marine resources, wildlife and nutrient-rich areas, and have endangered other vital ecological systems and scarce resources.

Conn. Gen. Stat. § 22a-91. The state has supported its policies with action. Vast sums of public money have been spent to improve municipal waste treatment facilities and reduce pollution and runoff. Millions more have been invested in our shellfish industry -- an industry once the envy of the nation -- that had been decimated by damage to habitat caused by thoughtless development activities. The state has a direct and immediate interest in the marine environment that is threatened by this project.

2. Standard of Review.

As the decisional law makes clear:

> The decision whether to issue a permit will be based on an evaluation of the probable impacts, including cumulative impacts, of the proposed activity and its intended use on the public interest." 33 C.F.R. § 320.4(a)….The statute and regulations express a strong preference for wetland protection. "It would hardly be putting the case too strongly to say that the Clean Water Act and the applicable regulations do not contemplate that wetlands will be destroyed simply because it is more convenient than not to do so: *Buttrey v. United States*, 690 F.2d 1170, 1180 (5th Cir. 1982), *cert. denied*, 461 U.S. 927, 103 S.Ct. 2087, 77 L.Ed.2d 298 (1983). Thus, where "there is a practicable alternative . . . which would have less adverse impact on the aquatic ecosystem," the Corps cannot issue a dredge or fill permit. 40 C.F.R. § 230.10(a) (1993) (emphasis added). Moreover, if a dredge or fill permit application does not concern a water-dependent project, the Corps assumes that practicable alternatives exist unless the applicant "clearly demonstrated otherwise." 40 C.F.R. § 230.10(a)(3). This presumption of practicable alternatives "is very strong," *Buttrey*, 690 F.2d at 1180 (emphasis in original), "creat[ing] an incentive for developers to avoid choosing wetlands when they could choose an alternative upland site," *Bersani v. Robichaud*, 850 F.2d 36, 44 (2d Cir. 1998), *cert denied*, 489 U.S. 1089, 109 S.Ct. 1556, 103 L.Ed.2d 859 (1989).

National Wildlife Federation v. Whistler, 27 F.3d 1341, 1344 (8th Cir. 1994).

Thus, the Clean Water Act requires consideration of three factual issues; 1) project purpose; 2) project impacts, both individual and cumulative, and 3) practicable and feasible alternatives. Once identified, these factors must be balanced against each other, recognizing that the applicant has the burden of proving that no practicable alternative exists. In this regard:

> Under applicable Section 404 guidelines, a discharge of dredge or fill will not be permitted if, among other things, there is a "practicable alternative" to the proposed discharge that would have a less adverse impact on the

> aquatic ecosystem. 33 U.S.C. § 1344(b)(1); 40 C.F.R. § 230.10(a). An alternative is considered practicable if "it is available and capable of being done after taking into consideration cost, existing technology and logistics in light of overall project purpose." 40 C.F.R. § 230.10(a)(2). The guidelines create a rebuttable presumption that practicable alternatives are available where the activity associated with a proposed discharge would occur on a wetland and is not water dependent. 40 C.F.R. § 230.10(a)(3). If the Corps finds that the permit complies with the Section 404(b)(1) guidelines, the permit "will be granted unless the district engineer determines that it would be contrary to the public interest." 33 C.F.R. § 320.4(a)(1). The public interest review evaluates "the probable impacts, including cumulative impacts, of the proposed activity and its intended use on the public interest." *Id*.

Fund for Animals, Inc. v. Rice, 85 F.3d 535, 542-43 (11th Cir. 1996).

3. The Project.

The Broadwater Project is immense in its size and scope. Not only is its sheer physical size and physical impact enormous, but it is proposed for a uniquely valuable and sensitive environment.

The facility will be composed of four interrelated elements. The largest will be the floating storage and regassification unit (FSRU). The FSRU is planned to be about the length of four football fields -- over 1,200 feet long, 200 feet wide and over 100 feet high, with a draft of 40 feet. DEIS, pp. 2-22, 2-3. The FSRU is designed to hold up to 8 billion cubic feet of natural gas along with the necessary machinery to transform the liquefied product into its gaseous form at capacities of up to a billion cubic feet per day. *Id*. The FSRU will be anchored to the seafloor by a mooring system that will cover 13,180 square feet. DEIS, p. 2-12. It will be the first and only example of an entirely untested vessel type. *See*, Interim Report of the Long Island Sound LNG Task Force, March 8, 2006, (Task Force Report), p. 25. No floating LNG facility of its kind exists

anywhere in the world. In effect, it is a huge experiment, filled with billions of cubic feet of flammable gas.

The second element of the project is a planned 21.7 mile long undersea thirty inch pipeline from the FSRU to the Iroquois Gas Transmission System (IGTS) pipeline. DEIS, p. 2-16. Broadwater plans to employ an underwater plow to install the pipeline. However, if bedrock or other seafloor conditions are unfavorable, particularly in the Stratford Shoals region, the company has indicated that it may pursue other methods. DEIS, section 2.3.2.2.

The third element of the Broadwater project comprises land based systems, including buildings for maintenance and other logistical support. The fourth and last element of the project, the LNG tankers that will reload the FSRU, will have an important impact on the Sound. These tankers, ranging from the existing 125,000 cubic meters capacity to an as yet unbuilt 250,000 cubic meters size, will cross the narrow entrance to the Sound every 2-3 days and will anchor next to the FSRU for unloading of LNG, resulting in an approximately 20 to 30 percent increase in average annual foreign-flag vessel arrivals. United States Coast Guard Waterways Suitability Report (WSR), released September 21, 2006, pp. 55 et seq., 103, 123.

4. COMMENTS

A Section 404 permit should not be issued to Broadwater for three reasons. First, the company has not completed all the necessary scientific and technical studies, and as a consequence, any analysis of the impacts of this project is inadequate and its conclusions fatally compromised. Second, every relevant technical study has demonstrated that, contrary to the projections made by Broadwater, once the substrate of the seafloor has

been damaged by pipeline installation, it does not recover and therefore the adverse environmental impacts cannot be minimized. Finally, the cumulative impacts and alternatives analysis for this project contained in the DEIS, upon which the Corps must rely, are hopelessly inadequate and fail properly to examine this project in the context of other projects that will impact the Sound and may provide clearly preferable alternatives as required by Section 404.

A. Incomplete Information.

Issuance of a 404 permit is premature because it is impossible to produce an accurate description of the risks and impacts of this project when crucial scientific and technological information is not available because it does not exist.

No vessels comparable in size and equipment to the proposed Broadwater FSRU and the anticipated mega-tankers that will serve it yet exist. Interim Report of the Long Island Sound LNG Task Force, March 8, 2006, (Task Force Report), p. 25. Nowhere in the world has any company created a floating regassification system even remotely like the one proposed here. The American Bureau of Shipping, which will provide technical services for Broadwater, has referred to the "concept of combining a floating re-gassification unit and distribution network with a yoke moored LNG hull" as a "first time combination of systems." *See*, letter from ABS to Shell Trading (US) Company, July 27, 2005, page 1, attached to United States Coast Guard WSR Report, Sept. 21, 2006, Appendix A, Broadwater Correspondence. In conducting its review, ABS informed Broadwater that it would be using the "ABS Guidance Notes on Review and Approval of Novel Concepts." *Id*., letter from ABS to Shell Trading US Company, dated March 9, 2006, page 1. FERC's DEIS itself clearly recognizes that the final design and

specifications for the FSRU are not yet complete by stating that "Broadwater has indicated that final design and material specifications for the FSRU would be determined in consultation with a ship classification society." DEIS, p. 2-3. Furthermore, the LNG carriers that are to resupply the FSRU have also never been built and are approximately twice the size of the biggest carriers that now exist.[1]

The DEIS also affirmatively acknowledges that certain critical elements of the project have not been studied or even designed yet. For example, Broadwater plans to use pile-driving during the construction of the critical yoke mooring system (YMS). However, as the DEIS itself states, "the specific methods to be used [will] be determined after completion of more detailed geotechnical surveys." DEIS, p. ES-8. The DEIS slips over this glaring deficiency by suggesting that Broadwater "coordinate with [National Marine Fisheries Service] to determine appropriate measures to avoid and minimize" impacts. *Id.*

Because the geotechnical work has not been done, no credible or reliable study of the pile-driving system and its environmental impacts can be done. Because the installation system cannot be evaluated, there is no means by which the overall construction impacts can be fully considered and, even more ominously, it is impossible to determine the ultimate strength and holding ability of the YMS.

This latter issue is of greatest concern. The closest analogues to the FSRU are the fixed oil and gas platforms in the North Sea and Gulf of Mexico. Hurricane Katrina destroyed 46 oil platforms and 4 drilling rigs in August, 2005. Hurricanes Destroyed 109

[1] According to the WSR, LNG carriers currently in service have a total capacity of approximately 138,000-144,000 cubic meters and planned carriers for the Broadwater project would reach approximately 250,000 cubic meters. WSR, page 9.

Oil Platforms: US Government, Agence France-Presse,//www.terradaily.com//, Oct. 4, 2005. Hurricane Rita destroyed 63 platforms and 1 drilling rig in September, 2005. *Id*. Katrina damaged a further 20 platforms and 9 rigs. Rita caused serious damage to 30 platforms and 10 rigs. *Id.*

Katrina, while powerful, was ultimately determined by the National Hurricane Center to be only a Category 3 storm at landfall, on a rating system which extends to Category 5. *Service Assessment*, Hurricane Katrina August 23-31, 2005, U.S. Dept. of Commerce, National Oceanic and Atmospheric Administration, page 1. In addition to the ever present threat of fog (encountered 10-12 percent of the time between April and August) and ice (which periodically can cover most or all of the Sound and has blocked ferry movements in the past), the WSR shows that forty tropical cyclones (16 tropical storms and 24 hurricanes) have struck southern New England since 1936.

Long Island Sound is much narrower than the Gulf of Mexico, with a dense concentration of marine vessels and landward population centers. WSR, pp. 44-46. If the FSRU is torn loose in a storm, there is practically nowhere it could go without endangering commercial shipping or seacoast communities. Therefore, the Army Corps of Engineers must assume that a Class 5 storm would cause the FSRU to sink or be torn from its anchorage and then determine the resulting damage to marine resources. In this regard, the Coast Guard's WSR notes that, in the wake of Katrina, that agency is reevaluating its design standards for securing offshore energy facilities. As the report states: "Because of the damage that did occur during these hurricanes, the Minerals Management Service (MMS) is reviewing the API RP 2A design standard, which is the

design standard Broadwater Energy has proposed to use for designing the fixed portion of the mooring system. To date, this review has not been completed." WSR, p. 116.

In the face of the uncontroverted fact that a huge amount of energy infrastructure built to current design standards failed during Hurricane Katrina, there is absolutely no basis for asserting that this proposed facility, with its mooring system construction method as yet unknown, is not likely to break away in a major storm. In fact, recent history suggests exactly the opposite. Absent the presently non-existent new standards, and a strong clear plan for the design and construction of the mooring system, the public is faced with an administrative record which claims that the project is safe when neither the geotechnical work nor the final construction plans for the anchoring system exist and, at the same time, the standards necessary to review the final system also do not exist.

The DEIS also lacks any analysis of another critical issue -- the probability of anchor strikes damaging the pipeline. This is of particular importance to any Section 404 evaluation by the Corps because if the pipeline is vulnerable to damage, then the Corps must consider the combined effects of the initial installation and any subsequent repair efforts.

Broadwater intends to install 21.6 miles of 30 inch pipe under the Sound. The top of the pipe will be 3 feet below the seafloor, but Broadwater planned to backfill only about 10% of the pipeline. FERC has stated that it intends to require Broadwater to backfill the entire length. See DEIS, pp. 3-13 – 3-15.

The DEIS contains absolutely no analysis of the risk of anchor strikes on the pipeline from any of the tens of thousands of commercial and larger recreational boats that use the Sound. Connecticut Light & Power Company has an electric cable system

that crosses the Sound from Northport, New York to Norwalk, Connecticut. Over approximately 30 years, it has suffered more than 50 anchor strikes severing one or more cables. *See* Testimony of R. Zaklukiewicz, Connecticut Siting Council, Dckt No. 224, CL&P 1385 Cable Replacement Project, June 5, 2002, p.5 (Ex. 6), *see also*, Task Force Report, pp. 74-77. An anchor for a large vessel can easily sink through many feet of sediment into the seabed. State of Connecticut Department of Environmental Protection, denial of Water Quality Certification under Section 401 of the Clean Water Act for Islander East Pipeline Project, dated December 19, 2006 (DEP Islander East Decision), p. 43. Even if the FERC recommendation to backfill the entire length of the pipeline is followed, the top of the pipeline will be covered only to a depth of 3 feet. The potential for repeated anchor strikes over the planned thirty year service period of this system cannot be overlooked, yet the DEIS is utterly silent on this important and dangerous issue.

This concern is hardly hypothetical. As noted above, existing underwater infrastructure in the Sound has been damaged by anchor strikes. Severing an electric cable only results in grounding of the current into the seafloor. Hitting a natural gas pipeline brings more serious results. A spud anchor dropped from the *Dave Blackburn* on October 23, 1996, in Tiger Pass, Louisiana, struck a 12 inch underwater natural gas pipeline owned by Tennessee Gas. National Transportation Safety Board (NTSB), Safety Recommendation, P-98-26 and -27, October 16, 1998, p.1. "[N]atural gas released from the pipeline enveloped the stern of the dredge and an accompanying tug. . . . Within seconds. . . the natural gas ignited. The resulting fire destroyed the dredge and the tug." *Id*. This NTSB report concludes, "[a]s shown by other fatal accidents investigated by the

Safety Board that involved damage to pipelines traversing navigable waterways, underwater pipelines represent a risk for both recreational and commercial vessels." *Id*., p. 3. The Broadwater DEIS contains *no* discussion of the risk of accidents involving rupture or breaching of the 21.7 miles of proposed pipeline.

It is instructive to compare the Broadwater DEIS with the impact statement prepared by the Army Corps of Engineers, and rejected as insufficient by the Second Circuit in *Town of Huntington v. Marsh*, 859 F.2d 1134 (2d Cir. 1988). In *Huntington*, the court concluded that necessary "data was insufficient to permit an informed site designation decision by the Corps. The vast bulk of material . . . was not analyzed in the study." *Id*. at 1141.

> The Court emphasized that, even when a government agency is
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> satisfied with its [EIS], public scrutiny of the basis for the Corps' decision is "essential to implementing NEPA." 40 C.F.R.1500.1(b). *See Sierra Club v. United States Army Corps of Engineers*, 701 F.2d 1011, 1029 (2d Cir. 1983) (EIS must set forth sufficient information for general public to make informed evaluation). We note in particular the comments by agency experts from the Department of Interior Office of Environmental Project Review, the Department of Commerce Office of Marine Pollution Assessment, and the Fish and Wildlife Service which indicated that evaluation of the merits of WLIS III as a dumpsite was made difficult or impossible by the lack of sufficient data in the EIS submitted. For these reasons, we hold that the Corps violated NEPA by not including analysis of the types, [and] quantities . . .of waste disposal in its EIS.
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> *Huntington*, at 1143.

The pervasive failure to fully evaluate, or even address, significant adverse impacts from this project underscores the fundamental failure of the DEIS to satisfy the minimum requirements of NEPA. More importantly, the failure to provide necessary data denies the Corps the opportunity to meaningfully consider whether this project meets

the standards of Section 404 of the Clean Water Act. Accordingly, no permit can be issued on this profoundly incomplete record.

B. Pipeline Installation Impacts

The importance of Long Island Sound -- environmentally, esthetically, and economically – cannot be overstated. Over centuries, for different peoples and cultures, it has been a constant, precious source of nurture and nature. The Sound is a unique estuary environment, where the tidal, sheltered waters support unique communities of plants and animals. Interim Report of the Long Island Sound LNG Task Force, March 8, 2006, (Task Force Report), pp. 28-29. Birds, mammals, fish, shellfish, and other wildlife depend on estuarine habitats as places to live, feed and reproduce. Numerous marine organisms, including many commercially valuable fish and shellfish species, depend on the Long Island Sound estuary at some point in their development. The Sound has been listed as an estuary of national significance. 33 U.S.C. § 1330(a)(2)(B). The DEIS itself notes that "[m]arine and freshwater influences have combined with the various substrates in nearshore and offshore areas to result in a wide assortment of natural habitat types around the Sound. . . . As a result, Long Island Sound supports a wide variety of fish (almost 100 species), birds, marine mammals, sea turtles, and invertebrates (including bivalves, lobsters, crabs, and benthic communities)." DEIS, p. 3-2.

Long Island Sound is also economically important to the Connecticut-New York region for a variety of commercial and recreational purposes. Task Force Report, pp.34-36. The Connecticut Long Island Sound Task Force Report puts the total use value at approximately $5.5 billion. Task Force Report, pp. 29, 34.

Broadwater, as noted above, intends to trench 20+ miles of the seafloor and build a massive YMS anchoring system that would impact a significant amount of the bottom of the Sound. Although Broadwater asserts that the pipeline trench "would be allowed to naturally recover," DEIS, 3-15, this will not happen because it cannot happen. As every study to date of pipeline impacts to the seafloor of the Sound has shown, the substrate does not recover and the benthic environment is permanently "converted" from its original state as a natural seafloor ecosystem into a utility trench.

Specifically, The Iroquois pipeline was installed from Connecticut to Long Island in 1991. The damage from the anchor marks and other damage associated with that pipeline can still be seen and the affected area cannot be used for shellfishing purposes. DEP Islander East Decision, p. 43, Task Force Report, pp. 80, 82. The Cross-Sound Cable Company electric transmission line cuts through from New Haven, Connecticut to Shoreham, Long Island and a depression along the cable installation line up to 3 feet deep and 8 feet wide can still be seen. Task Force Report, p. 78. Each of these projects causes a loss of habitat. This loss of habitat is enormous, and of great importance. As noted in a document prepared by the National Marine Fisheries Service ("NMFS"), adverse impacts from marine pipeline construction are substantial and long-lasting.

> Evidence of this from the Hudson River collected from benthic profiling performed by LaMont-Doherty Geological Observatory for the State of New York (New York State Department of Environmental Conservation 2003) indicates that other utility crossings, undertaken in the Hudson even decades ago, continue to have discernible adverse impacts on the aquatic resources in the project alignments. As a specific example, benthic profiling of a water line installation between Newburgh and Wappinger in 1974 indicates that the site has not fully recovered to preconstruction conditions.

Letter, Dr. Hogarth to NOAA General Counsel for Ocean Services, June 3, 2003, p.2 (Ex.1).

Regulators have noted that, once damaged, the benthic environment does not recover to its pre-construction condition. *See*, DEP Islander East Decision, p. 47. Thus, the damage from each project is permanent and cumulative. In this regard, a letter from the Director of the Connecticut Bureau of Aquaculture to the U.S. Army Corps of Engineers, dated May 28, 2002, (attached as Ex. 2) stated:

> An additional concern regarding [the Islander East] project and the other proposed submarine utility projects, is the potential cumulative impacts to Long Island Sound's habitat, water quality and fisheries. We recommend that whenever possible, the siting and construction of utilities in the estuarine environment be avoided. In review of pending applications and proposed projects, cumulative impacts need to be considered.

The State of Connecticut has long and uniformly negative experience with pipeline construction and past experience in the Sound has demonstrated that the effects of underwater construction operations persist for decades and effectively eliminate any possibility of commercial shellfishing operations into the foreseeable future. (Testimony of Dr. L. Stewart before the Connecticut Siting Council, April 12, 2002, p. 192 (Ex.3); Islander East FEIS, p. 3-70.) The FEIS produced by FERC for the Islander East Pipeline Project fully acknowledges that natural gas pipeline installation causes permanent "long-term conversion of shellfish habitat." Islander East FEIS, Dckt. No. CP01-384-000, p. 3-71. The Connecticut Department of Environmental Protection has noted that damage caused by installation of the Iroquois pipeline in 1991 is persistent and long-lasting. See, DEP Islander East Decision, p. 39, Islander East FEIS, Dckt. No. CP01-384-000, p. 3-70. Further, there is uncontroverted evidence that anchor scars up to six feet deep and other holes left by dredging and lay barges from the Iroquois project still exist and prevent use

of the area for shellfishing, years after construction was completed. (DEP Islander East Decision, pp. 43-48; Transcript of testimony of L. Williams, Connecticut Siting Council, Islander East application, Dckt. No. 221, 4/17/02 at 91-96 Ex.4.) Dr. Lance Stewart, a benthic ecologist, testified that the "continuum of trenching and anchor scars" could create entrapment and anoxic depressions, stating that this sort of "pitting" of the substrate was most harmful. Id., 4/12/02 at 185-187 (Ex. 5).

As the Connecticut DEP has determined: "Time does not necessarily heal the scars left by underwater utility installation." DEP Islander East Decision, p. 47. The DEP continues:

> Based on agency experience, it is difficult, if not impossible to restore the seafloor to pre-construction conditions because depressions in the sediment become areas of either erosion or deposition. . . . .[D]redging and general excavation of the substrate breaks up the compact fine grain sediment and allows water to "fluidize" the consistency. Once these sediments are disturbed by dredging, they will no longer exhibit the consolidation, high density and cohesiveness of the undisturbed, in-situ sediments and they would be easily eroded in areas of high current. Alternatively, depressions left on the seafloor in areas of lower current velocity may become traps for fluidized sediments. This phenomenon is mentioned in the [Islander East] FEIS at 3-65 regarding impacts associated with anchors and cable sweep: "These long lasting depressions can act as sediment traps that develop considerably different communities from the original deposits (Hall, 1994). The persistence of these depressions would represent a long-term conversion of benthic habitat.

DEP Islander East Decision, p.47. There is more than abundant evidence for the "persistence" of impacts associated with utility projects. The DEP noted that an air photo taken on November 1, 2001 clearly shows visible impact scars from the 1967-1969 installation of the Northeast Utilities cables between Connecticut and Long Island. Id. pp. 47-48. See also Task Force Report, pp. 74-77 (evidence of continued visibility of habitat damage 35 years after installation.)

Pipeline projects in New York have also had unequivocally negative long-term impacts associated with their construction. The letter cited above from Dr. William T. Hogarth of the National Oceanic and Atmospheric Administration stated, regarding the proposed Islander East pipeline, that

> The physical displacement of the existing habitat and hydration of the sediment will diminish or exclude resource use for relatively long periods of time. . . . other utility crossings, undertaken in the Hudson even decades ago, continue to have discernable adverse impacts on the aquatic resources in the project alignment.

Letter, Dr. Hogarth to NOAA General Counsel for Ocean Services, June 3, 2003, p. 2. (Ex.1).

The FERC DEIS is devoid of a single scientific study or expert conclusion that a pipeline trench can ever return to its preconstruction state. To the contrary, the DEIS itself briefly mentions the recent Eastchester Expansion Project in Long Island Sound and states: "Post-construction monitoring of the bathymetry along the Eastchester Expansion route has shown that attempts at mechanically backfilling the trench were not successful and that natural backfilling of the trench had not substantially occurred along most of the pipeline route. . . ." DEIS, p. 3-43. Therefore, all evidence continues to show that once the seafloor of the Sound is damaged by anchor scars and pipeline trenches, it never returns to its natural state and the marine resources in the trench area suffer for decades.

Another important deficiency of the DEIS is its complete failure to analyze the environmental consequences of an anchor strike or other breach of the 20+ miles of proposed pipeline. Two major accidental releases of natural gas in the Sea of Azov in 1982 and 1985 "drastically disturbed the composition and biomass of the water fauna and caused mass mortality of many organisms, including fish and benthic mollusks." Natural Gas in the Marine Environment, S. Patin, based on *Environmental Impact of the*

Offshore Oil and Gas Industry, p. 3, translated by Elena Cascio. Despite the known commercial and environmental importance of Connecticut's seafood industry, the DEIS contains *no* mention of the potential impacts of an undersea pipeline rupture on marine resources. Without such information, the Corps cannot conduct the type of review mandated by the Clean Water Act and this permit application must be denied.

Finally, "the public interest review evaluates 'the probable impacts, including cumulative impacts, of the proposed activity and its intended use on the public interest.' [33 C.F.R. § 320.4(a)(1)]." *Fund for Animals, Inc. v. Rice*, 85 F.3d 535, 542-43 (11th Cir. 1996). The Broadwater DEIS recognizes "a wide variety of projects and activities in the general area that, in concert with the proposed Broadwater Project, could potentially result in cumulative impacts." DEIS, 5-14. However, the DEIS then states that FERC chose only to evaluate 12 of these plans. Even within this limited subset of projects, the DEIS only finds two projects, Islander East Pipeline and Eastchester Expansion, worthy of actual discussion. After a brief review, contained in a total of four paragraphs, the DEIS asserts that the impacts of these projects "would generally result in temporary and minor effects" and that "only a small cumulative effect is anticipated when the impacts of the [Broadwater] Project are added to past, present, or reasonably foreseeable future Projects in the area." *Id*.

The DEIS reaches this conclusion by ignoring the facts. It is a matter of public record that the Islander East Pipeline Company intends to drive a major pipeline for 22.6 miles under the Sound not far from the proposed Broadwater FSRU. *See*, DEIS fig. 3.11-1; Final Environmental Impact Statement for the Islander East Pipeline Company, FERC

docket no. CP01-384-000.[2] Construction will displace hundreds of thousands of cubic yards of sediment. *Id*. at 3-44. In fact, the impacts from the planned Islander East project are so substantial that FERC determined that an EIS, not a far less demanding Finding of No Significant Impact (FONSI), was necessary. Further, the Islander East FEIS itself notes that the project will result, not merely in some temporary construction impacts, but in permanent impacts to significant areas of the seafloor. *Id*. at 3-71.

It is illogical to conclude that the Islander East pipeline will have a significant impact alone, but not in combination with Broadwater. Broadwater also plans to build a 21.6 mile long underwater pipeline which will create major impacts to the seafloor. There can be no doubt that the impacts of these two major projects need to be considered together, in essence as a 42 mile long pipeline. The seabed, of course, is unaware of the corporate ownership of any particular pipe and for the purposes of NEPA, it is the impact to the affected resource, not the ownership of the projects, that determines when a cumulative impact analysis is required.

Once again, it is instructive to compare the Broadwater DEIS with the Army Corps' similarly defective document in *Town of Huntington v. Marsh*, 859 F.2d 1134 (2d Cir. 1988). Huntington also involved a proposed project in the Sound. The Corps' EIS was rejected for, among other reasons, an inadequate cumulative impacts analysis. The Second Circuit noted:

> The objective criteria by which this Court will evaluate the Corps' EIS are discussed extensively in *Natural Resources Defense Council, Inc. v. Callaway*, 524 F.2d 79, 88-89 (2d Cir. 1975). That case is strikingly similar to the instant case in that the Callaway decision involved a

[2] On December 19, 2006, The Connecticut Department of Environmental Protection denied Islander East a certificate of consistency with Section 401 of the Clean Water Act for its project. This decision has been appealed by Islander East.

> challenge to an EIS allegedly deficient in its discussion of the types, quantities and cumulative effects of dredged waste disposal projects in the Long Island Sound. There the plaintiff claimed that several projects were pending while the EIS was being prepared by the U.S. Navy and that those projects were sufficiently foreseeable to have been included in the statement. This Court held in *Callaway* that the EIS failed to meet NEPA's standard of comprehensive evaluation, citing the CEQ guidelines for preparation of an EIS. *Id*. at 89. We so hold here.

Huntington, supra.. at 1141-1142.

The Court added

> it is well settled that the cumulative effects of a proposed federal action must be analyzed in an EIS. The Supreme Court in *Kleppe v. Sierra Club* has stated:
>
> > when several proposals for . . . actions that will have a cumulative or synergistic environmental impact upon a region are pending concurrently before an agency, their environmental consequences must be considered together.
>
> 427 U.S. 390, 410, 96 S. Ct. 2718, 49 L. Ed. 2d. 576 (1976). The genesis of this requirement is in the CEQ guidelines which provide that an EIS should analyze cumulative impacts when to do so is "the best way to assess adequately the combined impacts of similar actions." 40 C.F.R. 1508.25(a)(3). We do not take issue with particular conclusions reached by an agency after it has taken a "hard look" at environmental factors involved. *See City of New York v. U.S. Dep't of Transp*., 715 F.2d at 748 (NEPA mandates no particular substantive outcomes). However, it is improper to defer analysis of the types, quantities and cumulative effects of waste dumping when designating a new waste disposal site.

Huntington, *supra*, at 1142-1143.

Similarly here, the DEIS is improper and a violation of NEPA in that it refuses to properly analyze the cumulative impacts of the Broadwater Project with the known and foreseeable impacts of the Islander East pipeline and other projects on water quality, benthic environment, fin fish and shellfish resources and the overall ecosystem of Long Island Sound. Without an adequate cumulative impacts analysis, the Corps, therefore, must deny a Section 404 permit.

C. Alternatives Analysis.

Section 404 obligates ACOE to consider feasible and prudent alternatives, particularly when, as here, the proposed activity will have significant impacts on vital resources. 33 U.S.C. § 1344(b)(1); 40 C.F.R. § 230.10(a). With regard to LNG projects, the DEIS produced by FERC should contain an evaluation of any reasonably foreseeable alternatives that could meet the need in question with fewer adverse impacts. As the United States Court of Appeals for the Second Circuit said over thirty years ago, the

> requirement that the agency describe the anticipated environmental effects of proposed action is subject to a rule of reason. The agency need not foresee the unforeseeable, but by the same token neither can it avoid drafting an impact statement simply because describing the environmental effects of and alternatives to particular agency action involves some degree of forecasting. . . . It must be remembered that the basic thrust of an agency's responsibilities under NEPA is to predict the environmental effects of proposed action before the action is taken and those effects are fully known.

Scientists Institute For Public Information, Inc. v. Atomic Energy Commission, 481 F.2d 1079, 1092 (2d Cir. 1973).

> What is required is a review of projects that are reasonably foreseeable. Reasonable forecasting and speculation is thus implicit in NEPA, and we must reject any attempt by agencies to shirk their responsibilities under NEPA by labeling any and all discussion of future environmental effects as 'crystal ball inquiry.' . . . But implicit in this rule of reason is the overriding statutory duty of compliance with impact statement procedures to 'the fullest extent possible.'

Scientists Institute For Public Information, Inc. v. Atomic Energy Commission, 481 F.2d 1079, 1092 (2d Cir. 1973). *See also, Natural Resources Defense Council, Inc. v. Morton*, 458 F.2d 827, 837 (D.C. Cir. 1972) ("[T]he requirement in NEPA of discussion as to reasonable alternatives does not require 'crystal ball' inquiry. Mere administrative

difficulty does not interpose such flexibility into the requirements of NEPA as to undercut the duty of compliance 'to the fullest extent possible.'")

"NEPA was created to ensure that agencies will base decisions on detailed information regarding significant environmental impacts and that information will be available to a wide variety of concerned public and private actors. *Morongo Band of Mission Indians v. Federal Aviation Administration,* 161 F.3d 569, 575 (9th Cir. 1998)." *Mississippi River Basin Alliance v. Westphal,* 230 F.3d 170, 175 (5th Cir. 2000). As the Ninth Circuit recently stated:

> When we consider the purposes that NEPA was designed by Congress to serve, what was done here is inadequate. Congress wanted each federal agency spearheading a major federal project to put on the table, for the deciding agency's and for the public's view, a sufficiently detailed statement of environmental impacts and alternatives so as to permit informed decision making. The purpose of NEPA is to require disclosure of relevant environmental considerations that were given a "hard look" by the agency, and thereby to permit informed public comment on proposed action ...

Lands Council v. Powell, 379 F.3d 738, (9th Cir. 2004).

While an analysis of alternatives is a clear NEPA requirement, the DEIS for the Broadwater project contains no such analysis at all. The DEIS lists many potential alternative projects and then simply states, without discussion, explanation, or analysis, that the environmental or other impacts of the alternatives would be too great.

The DEIS alternatives section begins with an artificial and highly misleading statement of project need. "The purpose of the Project is to establish an LNG marine terminal capable of receiving imported LNG . . . storing and regasifying the LNG at 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. . . ." DEIS, 4-1.

Thus, the DEIS sets up as a project purpose the goal of having a "marine terminal" to "provide a new source of reliable, long-term, . . . natural gas." This project purpose confuses public need with Broadwater's private purpose. Specifically, if the point of the project is to supply natural gas to New York and Connecticut, there is no reason that only a marine regasification terminal will do and certainly no reason that such a terminal must achieve a certain sendout rate. A land based regasification terminal or two smaller terminals could easily meet the predetermined need for 1.0 bcfd. Also, a nearby, but out-of-region terminal could supply the necessary natural gas.

The DEIS also summarily, and with no apparent scientific analysis, dispenses with a number of conservation and renewable energy projects planned for the region, such as the Roosevelt Island Tidal Energy Project, the Orient Point Tidal Energy Project and several other tidal projects, as well as a number of major wind projects, with the statement that they "would offset only a small part of the projected energy demand." DEIS, p. 4-5. While these projects do not claim to meet all of the region's energy needs, they could collectively contribute significant new power supply, without use of fossil fuels, and obviate some of the need for this project. If the overall need is reduced, then other, smaller potential LNG projects would become viable alternatives.

Similarly, the Weaver's Cove LNG terminal, which is much further along than Broadwater in the regulatory process, is recognized as a new source of LNG imports, but is dismissed from consideration because, evidently, the existing Algonquin pipeline would need upgrading to bring gas to New York. DEIS, 4-7. Specifically, the DEIS

states that, to move the necessary gas, additional compression and pipeline upgrades are needed and that this "would result in environmental impacts that would be greater than those anticipated from . . . the proposed Project." DEIS 4-8. However, nowhere in the DEIS is there an indication of how many new compressor stations or what new piping would be needed or where. Much of the Algonquin pipeline infrastructure is already built in heavily impacted industrial areas. Additional work there might have minimal environmental impact. Further, the comparison of marine impacts to land impacts is not one-for-one. An acre of marine impact is not necessarily preferable to 2 acres of land impact. In many cases, the technology to mitigate or avoid land impacts is vastly more advanced than for marine impacts. Further, as noted above, it is often possible to site land impacts in commercial or industrial areas of limited environmental importance. The DEIS does not contain the minimal information necessary to actually measure, let alone compare, the impacts of these two competing projects.

Next, the DEIS utterly discounts a series of proposed projects currently being considered. For example, the Market Access Project, a part of the larger Northeast-07 Project, includes planned upgrades to existing and some new pipeline construction that would result in major new transmission capacity for the Northeast region and would tap into significant supplies of Canadian gas. DEIS, 4-10. Further, most of the proposed work would be along existing, already-impacted pipeline rights-of-way. Therefore, the Northeast – 07 Project, unlike Broadwater, would not devastate pristine and untouched seafloor and may have lower new impacts to the environment. However, the DEIS merely says that this is not an alternative to Broadwater because is does not meet the "objectives of providing a source of imported gas and additional natural gas storage

facilities." DEIS, 4-13. This statement ignores the fact that Northeast-07 would permit major new sources of Canadian gas to reach New York and that additional storage facilities could be built essentially anywhere on land. Therefore, contrary to FERC's summary dismissal of the Northeast – 07 Project, this latter proposal is a direct alternative to the Broadwater Project and may well have substantially reduced environmental impacts, while not relying on untested technology.

The DEIS is similarly inadequate in its treatment of numerous other planned pipeline projects including the Tennessee, Sentinel, and Dominion Hub projects. *See*, DEIS, 4-7 through 4-13. In every case, the DEIS concludes that these projects will carry insufficient gas and result in greater impacts than Broadwater. However, nowhere does the DEIS contain a shred of analysis showing why these projects will supposedly cause greater impacts. Furthermore, the DEIS contains no analysis of how the regional need for gas would be affected by any one or all of these projects.

Further, the DEIS contains only conclusory statements, not analysis, of potential onshore LNG terminals. For example, various commentators suggested re-using the decommissioned Shoreham Nuclear Power Station on Long Island as an LNG terminal. The DEIS fully acknowledges that "Shoreham . . . could provide a sufficient exclusion zone for LNG storage and regasification facilities. In addition, because the site already contains buildings and structures typical of heavy industry, use of the site would minimize visual impacts." DEIS, 4-23. The DEIS then concludes, however, that air emissions and noise impacts from construction from re-using the Shoreham facility would be too great and that "[o]verall, the environmental impacts associated with an

LNG terminal and regasification facility at the Shoreham site would be substantially greater than those of the proposed Project." DEIS, 4-24.

This conclusion is utterly unexplained. The Shoreham site is, as noted in the DEIS, already heavily industrialized and may have no meaningful natural resources left to impact. The FSRU site is pristine, and the pipeline corridor's proposed 21.7 miles of largely untouched seafloor has also never been impacted. It defies logic to see how reconfiguring a dead nuclear power plant will cause more environmental damage than trenching miles of seafloor in an estuary of national significance. FERC asserts that Broadwater is superior without any discussion or analysis, let alone detailed analysis, of the relative impacts of the two projects.

Perhaps the greatest failing of the DEIS alternatives discussion, however, relates to its consideration of the Safe Harbor Energy Project, a proposed LNG terminal with double the capacity of Broadwater, designed to supply the New Jersey and New York markets with new gas supplies and planned for construction off the shore of New Jersey. DEIS, 4-10. Faced with a larger project in a clearly superior location outside the narrow confines of Long Island Sound, the DEIS merely states that Safe Harbor is not an effective alternative because it would require "a permanent impact to a large area of the seafloor in the Atlantic Ocean," "could affect commercial shipping," and would require "new pipeline through areas that do not currently have a gas transmission pipeline." DEIS, pp. 4-20, 4-15.

In saying the above, the DEIS ignores the obvious fact that Broadwater will cause "a permanent impact to a large area of the seafloor" in the much more sensitive and confined Long Island Sound and that Broadwater is also located in the immediate vicinity

of major commercial shipping lanes. In addition, the fact that the Safe Harbor project would entail some undefined amount of new pipeline construction in no way disqualifies it from serving as an alternative to Broadwater. The Broadwater Project itself includes 21.7 miles of underwater pipeline installation in a critical marine environment and the DEIS nowhere indicates where the new Safe Harbor pipeline would be installed or details any environmental impacts of that pipeline.

The DEIS is also devoid of any analysis or discussion of the overall impact of Safe Harbor on the region. Because it proposes to import up to 2 bcfd, Safe Harbor could easily obviate the need for Broadwater *and* any number of the smaller .1 to .3 bcfd pipeline projects discussed in the DEIS. DEIS, 4-20. Thus, the true comparison is not Safe Harbor versus Broadwater, but Safe Harbor versus Broadwater, Sentinel, Islander East, etc. FERC's DEIS is similarly deficient in its failure to compare Broadwater with the proposed Neptune Deepwater Port and Northeast Gateway projects in Massachusetts, the Quoddy Bay LNG, and Downeast LNG projects in Maine, the Canaport LNG and Bear Head LNG terminals in Canada, and several other LNG terminal projects referred to in the DEIS but never fully analyzed or considered. DEIS, 4-18

The alternatives analysis in the DEIS is utterly inadequate. It fully recognizes the host of projects under review by FERC at this time, but makes no effort to evaluate the actual regional need and determine the best fit of terminals and pipelines to meet that need. It also engages in no serious attempt to analyze environmental impacts of alternatives. To the contrary, each project is viewed in isolation, both from the realities of regional need and from each other. This approach fails to meet both the legal requirements of NEPA and the energy requirements of the public. As a consequence, the

Corps is denied an effective consideration of alternatives. This fatal deficiency must be corrected before there can be any evaluation of the Broadwater project under Section 404 of the Clean Water Act.

CONCLUSION

Broadwater is an immense and unique project. While no one doubts that additional supplies of natural gas are needed, the Clean Water Act mandates that the Army Corps of Engineers carefully consider the impacts from dredging and similar activities to the natural resources of the nation and whether preferable alternatives to a given project exist. The environmentally sensitive character of Long Island Sound is clearly unsuited for a facility of this type. The DEIS is incomplete and inadequate in numerous critical respects, including the facts that the design standards for anchoring the system and attendant construction plans are not complete, no evaluation of potential anchor strikes has been provided, and no realistic alternatives analysis has been performed. In the absence of full consideration of all legally required factors, the administrative record is gravely deficient and cannot form the basis for issuance of a permit under Section 404 of the Clean Water Act.

Respectfully submitted,

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Dated: January 25, 2006