United States Department of the Interior

FISH AND WILDLIFE SERVICE
3817 Luker Road
Cortland, New York 13045

August 11, 2005

Colonel Richard J. Polo, Jr.
District Engineer, New York District
U.S. Army Corps of Engineers
26 Federal Plaza
New York, NY 10278

Attention: Mary Ann Miller (OP-RE)

Dear Colonel Polo:

The U.S. Fish and Wildlife Service (Service) has reviewed the Public Notice (PN) for Department of the Army Corps of Engineers (Corps) Application Number 2005-00365-L4 dated June 9, 2005. The applicants, Long Island Power Authority (LIPA) and Long Island Offshore Wind Park, LLC, propose to discharge fill material into waters of the United States including the Atlantic Ocean, Great South Bay, and the Narraskatuck River to construct an offshore wind energy generating facility and install submarine electric cables. The proposed project would be constructed 3.6 miles south of Jones Beach Island in West Gilgo, Town of Babylon, Suffolk County, and West Amityville and East Massapequa, Town of Oyster Bay, Nassau County, New York.

This is the report of the Service and the Department of the Interior submitted pursuant to, and in accordance with, provisions of the Fish and Wildlife Coordination Act (48 Stat, 401, as amended; 16 U.S.C. 661 et seq.), the Endangered Species Act (ESA) of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.), the National Environmental Policy Act of 1969 (NEPA) (42 U.S.C. 4321 et seq.), the Clean Water Act (33 U.S.C. 1344), the Rivers and Harbors Act (33 U.S.C. 403), and the Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703-712). The Service may provide additional comments, as applicable.

The Service supports the use of renewable energy sources when developed in an environmentally responsible manner. Renewable energy sources, such as solar and wind, can reduce environmental impacts of extraction and emissions associated with burning fossil fuels. To ensure that environmental benefits of renewable energy development outweigh potential impacts, we will work with the project sponsors in identifying ways to protect fish and wildlife.

Project Description

A permit is requested to construct 40 wind turbine generators on individual steel tower monopoles with interconnecting submarine electric cables, an offshore electric substation

platform, and a submarine electric transmission cable leading from the offshore substation to the existing onshore Sterling electric substation located in West Amityville. Each proposed 3.6 Megawatt (Mw) turbine would consist of a tower (18 feet in diameter) driven into the ocean bed that would rise approximately 261 feet above Mean Low Water Level (MLWL). Three rotor blades, each measuring 182 feet in length, would rise 443 feet above the MLWL at the peak and be approximately 78 feet above MLWL at the bottom blade. These blades would turn at a rate of 8 to 16 revolutions per minute depending on wind speed. Around the base of each turbine, eight polypropylene scour control mats will be installed to reduce local bottom current velocities. Each mat measures 16.4 feet on a side and would be anchored by stakes or weighted concrete mats. Total ocean bed disturbance at each turbine will be approximately 2,862 square feet for a combined total of 114,480 square feet (2.7 acres) for all turbines.

Located near the center of the project site, a 70 foot long by 85 foot wide elevated substation will be constructed to transfer electricity from the turbines to shore via a submarine transmission cable. This offshore platform will sit at least 55 feet above MLWL with the tallest height being approximately 98 feet above MLWL. An emergency diesel generator and 1,400 gallon diesel fuel tank with spill containment will be installed on the platform. This generator will provide an electric power source for aviation and navigation lights in the event of a power outage. The platform will also serve as a heliport.

A total of 125,000 linear feet (23.7 miles) of submarine cable would be buried beneath the ocean floor to connect turbines and transport electric current to the offshore substation platform. This 34.5 kilovolt inner-array collection grid will be installed by jet plow to a depth of 6 feet below the ocean floor. Turbine spacing would average approximately 2,155 feet apart in the 8 square mile project area. The total project area is estimated at 5,230 acres.

Generated electricity would be conveyed from the offshore substation to land via a 138 kilovolt transmission offshore-to-onshore cable. Total length of this transmission cable is 4.6 miles from the substation to Jones Beach. The cable will be buried by using a combination of three construction methods including a hydraulic jet plow for ocean bed work, horizontal directional drilling for crossing the barrier beach (Jones Beach Island), and traditional trenching for excavation in onshore upland areas.

Burying of the submarine cable beneath the ocean floor will be accomplished by either a jetting device that travels along a cable which fluidizes the bottom sediments, or a jetting device equipped with a mechanical plow which removes hardened sediment prior to cable placement. In either case, the applicant has indicated that fluidized sediments should settle back into the trench to cover the cable.

To cross the barrier island, directional drilling will be used in conjunction with two temporary transition vaults, one on each side of Jones Beach Island. The ocean side vault, measuring 30 feet long by 15 feet wide by 8 feet high would be placed on the ocean floor, whereas the vault in Great South Bay would require excavation of 233 cubic yards of sediment. In addition, approximately 444 cubic yards of drilling spoils would be dredged during the directional drilling process and disposed of in an upland location. It is indicated that approximately 2,000 feet of directional drilling is required to cross Jones Beach Island and 2.7 miles of buried cable is required to cross Great South Bay. On land, a majority of the cable (2.1 miles) will be located within existing road and utility rights-of

way. However, a portion of the cable route must be directionally drilled under the Narraskatuck River.
A construction staging area has been designated at an existing commercial maritime terminal in Bayonne, New Jersey. In addition, an operations center will be built at the Robert Moses State Park Boat Basin to facilitate project construction.

National Environmental Policy Act Comments

The PN indicates that an Environmental Assessment (EA) or an Environmental Impact Statement (EIS) report will be prepared by the Corps to evaluate potential project impacts on the human environment. An EA is prepared for projects with minimal impacts, whereas an EIS is normally prepared for large projects with potentially significant impacts. Because this project involves the construction and operation of a substantially sized facility with the potential to adversely affect many natural resources, the only appropriate action for the Corps is to prepare an EIS with full public involvement and review. The NEPA requires a full and thorough evaluation and the preparation of an EIS for projects where potential impacts can be significant.

Accordingly, the Corps' New England District Office recognized this fact when a similar offshore wind energy project, Cape Wind, was proposed off the coast of Cape Cod. For that project, the Corps determined that detailed studies were appropriate and subsequently required the preparation of an EIS report. Full agency and public review resulted in over 5,000 comments being provided to the Corps to assist in the project evaluation process.

The Council of Environmental Quality's (CEQ) implementing regulations of NEPA direct an EIS to be prepared when, under Part 1501.4 (2)(i), "The proposed action is, or is closely similar to, one which normally requires the preparation of an environmental impact statement under the procedures adopted by the agency pursuant to Sec. 1507.3." Section 1507 also requires Federal agencies to demonstrate compliance with NEPA. It has been previously determined, by the Corps, that projects of this type do require the preparation of an EIS. Further, the above-referenced section of CEQ regulations require an EIS for similar projects, such as the one being proposed by the applicants.

Few details about the environmental impacts, including to migratory bird trust resources, are mentioned in the PN. Because there are simply so many unknowns about the potential impacts of this proposed facility on bird trust resources – not to mention many other conservation concerns – a detailed, exhaustive, and full environmental review of this project should occur. We recommend that the Corps commit to the preparation of an EIS report and work with the applicants to fully evaluate the proposed project and its effects on the environment. The Corps should initiate project scoping with the public and government agencies to determine the level of study necessary in the evaluation of this project. It is our understanding that the applicants had committed to and initiated this scoping process but curtailed these efforts because it is the Corps' responsibility, as the lead Federal agency, to conduct project scoping. We look forward to working with the Corps and the applicants to determine the adequate level of environmental studies which will evaluate potential project impacts to fish and wildlife.

The Corps should consider, however, the preparation of a Programmatic EIS (PEIS) for wind energy projects proposed along the eastern seaboard, given the interest in offshore wind energy development. It is our understanding that the various Corps District Offices have had numerous meetings with wind energy developers interested in placing wind

turbines in offshore areas from Maine to Florida. One company alone has expressed interest in at least 14 different project locations. We are aware of other developers also interested in locating projects in multiple states. At least 7 offshore sites, including this proposal, are being proposed adjacent to Long Island. Given the certainty that additional wind development will be pursued in vast offshore areas and under the jurisdiction of the Corps, we recommend that the Corps prepare a PEIS. Recently, the U.S. Bureau of Land Management prepared a PEIS for potential wind energy development on Federal land in the western United States. Among the reasons cited for preparing the PEIS was to reduce costs and regulatory burden on the agency. The Corps should take a similar approach to offshore wind development. Preparation of a PEIS will allow the Corps to address environmental review in a consistent manner and consider the cumulative effects of these projects. However, even with the preparation of a PEIS, site-specific studies will still be necessary to determine potential impacts of each individual project. This concept of a tiered approach is discussed in the NEPA regulations at 40 CFR 1508.28.

Fish and Wildlife Coordination Act Comments

The proposed project is located within and adjacent to significant coastal natural resources. Great South Bay is part of the South Shore Estuary Reserve designated by the New York State Legislature and considered to be a highly productive habitat. Formed by barriers islands, the estuary provides significant cultural, economic, and natural values. Tidal wetlands in the area are home to a high diversity of plant and animal life.

These wetlands are a priority habitat for bird conservation along the Southern New England/Mid Atlantic Coast. Priority habitats are either in need of critical conservation measures or are critical for long-term planning to conserve regionally important bird populations. The maritime beach and dune communities have been identified as the highest priority habitat in the Southern New England/Mid Atlantic Coast Region (American Bird Conservancy and U.S. Fish and Wildlife Service 2000). Further, the U.S. Shorebird Conservation Plan indicates that significant areas for shorebirds in New York include the Long Island Atlantic Coast (and Jamaica Bay), Atlantic Coastal Salt Marshes, and Atlantic Coastal Beaches (Clark and Niles 2000). High energy beach fronts are used for foraging and breeding; sandy flats (including inlet interfaces at low tide) are used for foraging; and rock jetties and groins are used for foraging and loafing.

Similarly, the Service has identified and evaluated portions of the project area as a significant resource for fish and wildlife as described in *Significant Habitats and Habitat Complexes of the New York Bight Watershed* (USFWS 1996). This document should be referenced by the applicants for habitat and wildlife information and species of special emphasis lists. At least 210 species of special emphasis, including 43 species of fish and 101 species of birds, have been found in the Great South Bay complex. Areas along the south shore and within Great South Bay are of regional importance to wildlife and provide important economic benefits as well. Recommendations are provided in this document to limit potential negative effects of development in these areas.

Further, a portion of the project area is designated as a Significant Coastal Fish and Wildlife Habitat (SCFWH) as determined by the New York State Department of State, in consultation with the New York State Department of Environmental Conservation (NYSDEC). Similar to the habitat designations above, the SCFWH complex includes extensive undeveloped salt marshes, tidal flats, islands, and shallow wetlands supporting large concentrations of waterfowl, wading and shore birds along with many species of

passerines, marine finfish, shellfish, reptiles, amphibians, and other forms of wildlife (NYSDEC 1987).

The applicant has prepared an alternatives analysis as outlined in the Phase I and Phase II siting reports. Siting criteria for the project include wind speed and consistency, water depth, onshore substation locations, and shipping lanes within Federal waters (at least 3 miles from shore). A relatively narrow band of area meets these criteria along the south shore of Long Island according to the project reports. However, the alternatives analysis may not have thoroughly evaluated several factors.

Siting of the project is based mostly on wind speed and consistency along the south shore, and water depth. The Phase I report indicates that several foundation types may be available to construct turbines in water deeper than what was evaluated for this project. The applicant chose the monopole foundation, which limits siting the project to waters less than 70 feet deep, but acknowledges that other foundation types are feasible. Therefore, additional areas may be available for siting the project. Other factors reviewed include distance to shore, transmission access, area size, shipping lanes, aviation, and bird activity. Avian distribution and abundance were determined by existing information and limited boat and aerial surveys. As will be explained below, avian data was collected for only a very brief period of time with limited technology (visual observations) and, therefore, should not be interpreted as representing the spatial and temporal use of the project site by airborne wildlife.

Although the avian surveys were limited, data collected indicate that birds were concentrated in some areas (Johnson et al. 2004). It is not clear if the applicants used the avian data to site individual turbine locations within the project area. We know of no project design modification to avoid these areas. We note that the 744-acre Town of Hempstead artificial reef site is located within the project area. Artificial reefs are designed to attract and produce large numbers of fish and other marine organisms, which may draw feeding birds to the turbine locations. The applicants should explain how the turbine locations were selected and what avoidance and minimization measures are incorporated into the project design to reduce wildlife impacts.

The LIPA evaluated its existing electric grid infrastructure to determine how to get generated electricity from the turbines to the power market. Four substations are located along the south shore of Long Island and each was evaluated in terms of cost of equipment upgrades to handle the electricity from the project. It was determined that the Sterling substation was the best facility to receive the electricity. Similarly, alternatives were evaluated for the transmission cable route. As indicated in the PN, the proposed transmission cable would bisect Great South Bay, with a portion of the cable being located in the Amityville Channel. However, much of the cable will be placed in or adjacent to undisturbed habitat including Gilgo Island, Wansers Island, and Little Island. We have concerns about the location of the cable within significant coastal habitat and the potential impacts to fish and wildlife. This area provides important feeding, breeding, and resting habitat for a variety of avian species.

On page 30 of LIPA's Phase 2 report, text indicates that site-specific studies will be conducted in the future to document resources that may be affected by the transmission cable crossing of Great South Bay. However, these studies were not conducted that we are aware of and, therefore, the Corps does not have all of the relevant environmental

information needed to compare alternatives for this component of the project. The selected transmission cable route is based primarily on costs and distance.

Another option reviewed by LIPA would involve installation of the transmission cable along the Wantagh Causeway, taking a land route to the Sterling substation. While this route was determined to be feasible, it was dismissed due to cost and distance. The route is approximately 4.3 miles longer and would cost 13 million dollars more, but it may have significantly less environmental impacts because much of the route would be within existing road and utility rights-of-way. An environmental analysis, comparing these options, was not provided by the applicants. The land based cable route also comprises a portion of the Neptune regional electric transmission line permitted by the Corps on February 16, 2005. In a letter dated July 28, 2004, the Service recommended that the transmission cables of the two projects be co-located to reduce environmental impacts associated with construction and maintenance. We repeat that recommendation in order to reduce potential environmental impacts.

Potential direct impacts to fish and wildlife and their habitats include, but are not limited to, burial or degradation of rock outcrops and shoals, loss of shoreline and wetland vegetation, siltation, resuspension of sediments, increased turbidity, disruption of fish movements, and impacts to benthic habitat. During the installation of submarine cables, suspended sediment could bury important habitat and degrade habitat quality. Suspended sediment also lowers the levels of dissolved oxygen and may deter fish movements or inhibit foraging. Indirect impacts may include fragmentation of contiguous habitat and degradation of spawning areas. We note that habitat features such as eel grass beds and fish spawning areas were not provided on project plans. The applicant should identify and describe the location and extent of these resources and potential impacts that would result from the installation, operation, and maintenance of the transmission cables.

Over 30 miles of cable trench must be excavated, but limited information is provided regarding the restoration of the ocean floor upon the completion of trenching operations. The PN indicates that fluidized sediment should settle back into the excavated trench but no data is provided to support that claim. A more thorough analysis of the size and duration of the turbidity plume should be modeled from the use of the three cable installation methods.

The current project proposal involves the construction of 40 turbines; however, additional turbines may be installed by LIPA and/or other developers. The LIPA 5-year energy plan identifies wind power as a major future electricity provider, but onshore sites are limited. Stating "Consequently, turning to the sea is Long Island's only option if it wants to make wind power a meaningful part of its energy mix." While we understand that limited information may be available, LIPA should attempt to evaluate the cumulative impact of this project along with other similar projects proposed along the south shore of Long Island. Consideration should be given to emerging technology, such as turbine foundation design, which would enable these structures to be placed in deeper waters.

Migratory Bird Treaty Act Comments

A wide variety of avian species can be found on the south shore of Long Island at all times of the year. Examples of avian species found in the project area include great egrets (*Ardea alba*), snowy egrets (*Egretta thula*), black crowned night herons (*Nycticorax nycticorax*), little blue herons (*Egretta caerulea*), tri-colored herons (*Egretta*

tricolor), glossy ibis (*Plegadis falcinellus*), greater black-backed gulls (*Larus marinus*), clapper rails (*Rallus longirostris*), willets (*Catoptrophorus semipalmatus*), saltmarsh sharp-tailed sparrows (*Ammospiza caudacuta*), and American oystercatcher (*Haemotopus palliatus*). The last two species are also included in the Service's 2002 Bird of Conservation Concern list for the Mid-Atlantic/New England Coast area.

A cursory review of 2005 Audubon Christmas Bird Count (CBC) Data for Southern Nassau County and Captree Island reveal a tremendous amount of over-wintering or year-round bird activity in these survey areas (Audubon 2005). Combining the results of these studies revealed over 100,000 birds which were counted in the Southern Nassau County and Captree CBC Sites.

Long Island contains 28 sites designated as Important Bird Areas by Audubon New York including many along the South Shore. Captree Island, Great South Bay, Fire Island, and Jones Beach West Important Bird Areas are all located adjacent to the project area. In addition, annual raptor migration counts are conducted at Fire Island and a bird banding station is established providing a long-term data set. Concentrations of passerines, raptors, and waterbirds are noted each year along the south shore of the island. Diverse vegetation communities provide important stopover habitat for a variety of migratory bird species.

Shorebirds commonly observed during fall migration or as summering non-breeding birds include American oystercatcher, black-bellied plover (*Pluvialis squatarola*), piping plover, greater and lesser yellowlegs (*Tringa melanoleuca* and *T. flavipes*), willet (*Catoptrophorus semipalmatus*), short-billed dowitcher (*Limnodromus griseus*), sanderling (*Calidris alba*), semipalmated sandpiper (*Calidris pusilla*), western sandpiper (*Calidris mauri*), least sandpiper (*Calidris minutilla*), and pectoral sandpiper (*Calidris melanotos*). In the mid-1990s, estimates of total annual shorebird use ranged from 50,000 to 100,000 birds, with peak autumn counts of between 10,000 and 30,000. The peak shorebird use in the area is during the summer and fall, especially for semipalmated plover, black-bellied plover, willet, semipalmated sandpiper, least sandpiper, and short-billed dowitcher.

Pelagic avian species such as alcids, shearwaters, and petrels have been observed off of the south shore of Long Island, but information is lacking on most species distribution (Bull 1974). Some species can be found foraging as close as 1 mile from shore depending on the location of prey. Large numbers of waterfowl, particularly scoters, have been observed in the project area. Information collected to date by the applicants does not identify the potential risks to these and others birds using the project airspace.

While the PN indicates that turbines will be individually spaced approximately 2,155 feet from immediately adjacent generators, the spacing is justified based only on maximum wind potential and apparent ease of boat travel. No mention is made about spacing impacts, as well as the effects of the rotor swept area, of each turbine to resident or migratory birds, including sea ducks, shearwaters, petrels, northern gannets, roseate terns, piping plovers, or other species. Of concern are impacts to waterbirds which fly at varying heights above mean water levels. Will the lowest point of the rotor swept area, 78 feet above MLWL, be sufficient? Will plunge divers like northern gannets strike blades while feeding on fish? Will the wind facility disturb them, causing site abandonment? These and other questions should be answered.

Radar studies just released in June 2005 of the Nysted facility from the Danish National Environmental Research Institute (http://www.dmu.dk/Internatinoal/News/waterbirds+and+windmills.htm) indicate that waterbirds, predominately eiders and geese, substantially avoid large offshore wind farms in daily flights from feeding to rafting areas – findings which have been replicated elsewhere in Europe. The Nysted study is continuing in attempts to assess effects on other seabirds. Avoidance, site abandonment, and disturbance are major concerns to migratory birds since these impacts can potentially seriously affect the survival rate of avian populations. We know virtually nothing about seabird avoidance of wind facilities in U.S. waters simply because no turbines have yet been installed. Therefore, appropriate avian studies must be conducted to determine if this project may impact migratory birds and to what degree.

An additional Danish study estimating impacts from the Netherlands' 1,700 wind turbines – some of which are offshore – estimates annual avian mortality from blade strikes at 50,000 birds (28 birds per turbine; http://www.planetark.com/dailynewsstory.cfm/newsid/31542/story.htm), a figure far higher than the estimates of 2.3 bird deaths per turbine per year in the U.S. (Erickson *et al.* 2001 reviewed in Manville 2005).

Because of unknown impacts to waterbirds in U.S. waters from direct mortality and impacts resulting from habitat disturbance, avoidance, and fragmentation, we recommend that additional site monitoring studies be performed. Both pre- and post-construction monitoring is important. Researchers in Europe (Bairlein 2004 pers. communication) are using vertical and horizontal marine radars, deployed from barges, fixed vessels, and mounted platforms, to assess waterbird and other avifauna. Similar studies were conducted for the Cape Wind project in Massachusetts and revealed that considerably more birds were being detected in the study area than by using visual observations alone (Service memorandum 2004). Marine radar data are being "ground-truthed" using portable thermal imagery equipment, also deployed from vessels and platforms. We suggest the applicants consider using these technologies. Due to the wide range of unknown avian information, 3 years of pre-construction monitoring should provide meaningful data on species presence and uses of the habitat. Three years of post-construction monitoring would help to validate that the sites selected were not adversely impacting avifauna populations. We suggest the studies address both mortality and behavioral issues.

Avian studies in the project area consisted of aerial and boat surveys conducted in and adjacent to the project area. A total of 2 aerial and 17 boat surveys were conducted in 2004 resulting in approximately 4,100 individual birds being tabulated. Only one winter (2005) and one summer survey was conducted. The aerial and boat survey protocols were discussed between the applicants, the NYSDEC, and the Service in several meetings held in the spring of 2004. It was emphasized by the NYSDEC and the Service during these meetings that surveys by plane and boat would provide limited information on avian use of the site. While the survey techniques used have some function in identifying species presence, the data collected only represents a fraction of the avian use of the project site.

The agencies recommended that surveys document the temporal and spatial distribution of wildlife in the project airspace at all times of the day and night and over all seasons. Further, it was recommended that in addition to the aerial and boat surveys, other survey

techniques be employed which document the movements of flying animals at night and during inclement weather conditions. Specifically, it was recommended that radar technology be used to determine migration characteristics such as flight directions, migration passage rates, and flight altitudes. Critically important information such as the relative proportions of birds flying through the proposed altitude of the turbine rotor swept area was requested. This information was requested for a multiple year period to account for among-year variability in migration patterns and weather conditions.

From a scientific and regulatory perspective, the 3-year period is sufficiently long enough that year-to-year variability should be sampled in a reasonably adequate fashion by the radar, acoustic, predator-prey, weather-related, and visual study protocols. The data should be sufficient to characterize the spatial and temporal uses of avian resources within the project area except for unusual or periodic events that did not occur during the sampling period. We would expect this data to be adequate to make siting decisions on a macro scale, and our hope is that it would be adequate for micro scale (individual tower) siting decisions.

After initially committing to conducting studies, the applicant decided in early 2005 to cancel radar surveys of the project site. The decision was made after being informed of the much more complete data set being collected by radar equipment on the Cape Wind offshore energy project. It was conveyed to the applicants that the Cape Wind project aerial and boat surveys resulted in the observation of approximately 210 birds flying at turbine height while the radar surveys conducted for the same project resulted in the tabulation of over 127,697 targets within the proposed rotor swept zone. This difference in data reflects the superior utility of radar equipment to determine avian abundance, location (including altitude), and direction of flight within the project airspace and potential impact zone.

For this project, the Service recommends that 3 years of preconstruction studies be completed using a combination of radar (horizontal and vertical), acoustic, direct field sampling, and visual (boat, barge, and aircraft) observation. The remote sensing techniques (radar and acoustic) should be operated continuously 365 days per year using a combination of land-based and ocean-based facilities. The visual observations should be conducted when the radar is being operated on a jack-up barge or other platform. The additional observations would be those necessary or advisable for the purpose of ground-truthing the remote sensing data, to assist other study elements such as weather-related effects, and to identify birds during periods of major movement or migration. Ideally, the study protocol will evaluate the response of avian use to weather events. This should include avian response prior to and after storm events, inclement weather such as rain, drizzle and fog, and response of migrants to storms, frontal movements, and inclement weather. Following the collection of additional avian data, the applicants should prepare an avian risk assessment which adequately evaluates the potential risk to birds from the design, construction, and operation of the wind turbine project. This evaluation should take into account species which use the project airspace and consider all seasons of the year.

Care should be taken to minimize the potential for bird electrocution at the substation or other points of electrical contact where birds could come into contact with phase-to-phase or phase-to-ground wiring, resulting in electrocution. We recommend that *Suggested Practices for Raptor Protection on Power Lines* (APLIC 1996), or its updated version to be released later this year, be used to minimize the potential for electrocutions.

The substation and turbine nacelles have the potential to serve as offshore perches and, therefore, may attract birds such as gulls, terns, and herons. The applicants should evaluate the potential risk in attracting birds to the sea structures and identify measures to reduce that risk.

Little detail is provided in the PN regarding aviation and navigation warning lighting. Based on concerns about lights attracting birds at these facilities, especially in inclement weather (Manville 2005), we encourage the applicants to use minimum intensity, red or white, strobe lights at night on outbuildings, turbine nacelles, and any other facilities requiring warning lights. We discourage use of bright, high-intensity, high-lumen sodium or mercury vapor lighting. These have been well documented to attract birds, especially during inclement weather at night (Manville 2005).

Construction of the Operations Center should occur during the non-nesting/breeding season for all affected avifauna in the area. Any communication towers that need to be constructed (we recommend collocation on existing structures) should be unguyed, unlit, and remain less than 200 feet above ground level, as per the Service's voluntary communication tower guidance.

To protect the turbine foundations from scour, polypropylene mats are proposed around the base of each structure. These mats will consist of 8 square mats measuring 16 feet in each side. It is not clear what the potential implications of the scour protection will be on marine life. We found no description of the impact of these structures. Information from the manufacturer indicates that the structures may enhance habitat conditions by providing protection from predators, spawning and nursery habitat (in shallow conditions), and feeding areas. If the proposed structures do enhance fish habitat conditions, an increase in fish abundance or concentration of fish may be expected and result in an attraction of fish-eating birds to the turbine sites, thereby increasing avian risk. The applicants should provide additional information on the potential of these structures to attract fish at the turbine locations.

Endangered Species Act Comments

Threatened and endangered species are afforded protection under Section 7 (a)(2) of the ESA which requires every Federal agency, in consultation with the Service, to ensure that any action it authorizes, funds, or carries out is not likely to jeopardize the continued existence of a listed species or result in the adverse modification or destruction of critical habitat. The ESA is further implemented by regulation found at 50 CFR §402. As part of this consultation, the action agency is required to make a determination of the potential direct, indirect, and cumulative effects of the proposed action on Federally-listed species. Through the informal consultation process, the Service will make recommendations to the Corps on measures to avoid and minimize adverse effects to listed species. Ultimately, after the action agency has made its determination on the potential effects of the proposed project on listed species, the action agency must seek concurrence from the Service. Should the action agency arrive at a "likely to adversely affect" determination, formal consultation is required. Further, Section 7(d) of the ESA states, "After initiation of consultation required under subsection (a)(2), the Federal agency and the permit or license applicant shall not make any irreversible or irretrievable commitment of resources with respect to the agency action which has the effect of foreclosing the formulation or

implementation of any reasonable and prudent alternative measures which would not violate subsection (a)(2)."

Based on the information in the PN and supporting documentation, the Corps has determined that the proposed activity may affect listed species under the jurisdiction of either the Service or the National Oceanic and Atmospheric Administration-Fisheries (NOAA/F). As a result, the Corps, by way of the PN is consulting with the Service to determine the presence of, and potential impacts to, listed species or their critical habitat in the applicant's project area. Species which are under the jurisdiction of the Service which the Corps has indicated may be affected by the proposed activity include piping plover (*Charadrius melodus*), roseate tern (*Sterna dougallii dougallii*), and seabeach amaranth (*Amaranthus pumilus*). In addition, staff from the Corps' Regulatory Branch, Eastern Permit Section, have informed the Service that they will be initiating further Section 7 consultation on this proposal.

As stated in the PN an EA and/or an EIS may be prepared pursuant to the NEPA prior to granting a permit. The EA/EIS should focus in detail on the potential effects of the proposed project on Federally- and State-listed species as well as other species of concern. For large offshore projects, the Service is recommending the preparation of an EIS, given the richness of species found in the coastal flyway, including Federally- and State-listed species. A reasonable number of alternative sites should be presented in accordance with the guidelines developed by the President's Council on Environmental Quality which states, "agencies shall rigorously explore and objectively evaluate all reasonable alternatives" [40 CFR 1502.14(a)] and "agencies shall include reasonable alternatives not within the jurisdiction of the lead agency" [40 CFR1502.14 (c)].

As a rule of thumb, if an EIS is required for the proposed action and construction-type impacts are involved, it is considered a major construction activity. By regulation, a biological assessment is prepared for "major construction activities" considered to be Federal actions significantly affecting the quality of the human environment as referred to in NEPA. Biological assessments need not be stand alone documents, but rather are often included as part of a Federal agency's analysis of effects in compliance with Section 102 of NEPA.

The content of the biological assessment prepared pursuant to the ESA is largely at the discretion of the action agency, although the regulations provide recommended contents [see 50 CFR §402.12(f)], but generally include results of on-site inspections determining the presence of listed or proposed species, and an analysis of the likely effects of the action on the species or habitat based on biological studies, review of the literature, and the views of species experts. The biological assessment also describes any known unrelated future non-Federal activities ("cumulative effects") reasonably certain to occur within the action area that are likely to affect listed species. The assessment should also contain an analysis of alternate actions considered by the Federal agency for the proposed action. Sometimes information in other environmental analysis documents can substitute or be easily modified to produce the biological assessment. Once finalized, the biological assessment should be sent to this office for review. If adverse effect cannot be avoided, formal Section 7 consultation will be required. We suggest the Corps contact the Service to discuss the consultation process as it relates to this project.

Presence of Listed Species in the Proposed Project Area

All three species noted above, which are under the jurisdiction of this agency, are present in portions of the proposed project area. Historic and current breeding areas for piping plover and roseate tern are located on Jones Beach Island, north of the proposed wind park area. The Town of Babylon's Cedar Beach and Gilgo Beach, as well as Gilgo State Park, which is administered by the New York State Office of Parks, Recreation and Historic Preservation (NYSOPRHP), also support seabeach amaranth populations.

Piping plover as well roseate tern breed on the ocean beaches and bay islands, respectively, in the proposed project area, on lands managed by the Town of Oyster Bay, Town of Babylon, and NYSOPRHP. In addition, the PN states that roseate terns have been identified during aerial and boat surveys of the proposed wind park area.

Both the piping plover and roseate tern may be affected by collision hazards posed by the offshore turbines. However, we do not currently have data on how far offshore, or at what elevation, the piping plover migrate in this area; thus, we cannot predict what hazards wind turbines might present to migrating plovers, and the Service presently has no guidelines regarding the construction or siting of marine wind turbine facilities. In terms of the roseate tern, preliminary survey information conducted by the applicant indicates the presence of this species in the proposed wind energy project site. While the information is currently very preliminary and limited, on-going surveys may show the importance of the site as a foraging area or migration route for this endangered species. It is likely that roseate terns also migrate through this area in spring and return through this way on their migration to the tropics in the fall. Again, we do not know how far offshore or at what elevation the roseate terns migrate; thus, we cannot predict possible hazards from wind turbines to migrating terns, but preliminary information collected by the applicant does point to some use of the site by this species.

To address potential effects on roseate terns, it will be necessary to determine the significance of roseate presence in the project area (approximate numbers of birds, duration in the area, and seasonality of occurrence), and secondly, their behavior including importantly, flight altitude above water. A risk assessment will be required to evaluate if roseate terns flying in or through the project area coincident with adverse weather events or engaged in an activity such as courtship or feeding, are likely to be vulnerable to collision mortality with the wind turbines. Based on roseate tern biology, there are two situations pertinent to this discussion when roseate terns fly at an altitude that may, theoretically, place them at risk: 1) during courtship flights in May and early June, and 2) during flights from feeding areas in offshore locations to roosting sites in the Great South Bay (mid-July to mid-September). In 2005, approximately 80 roseate tern nests were located in the Cedar Beach area. Therefore, the location of the project adjacent to Cedar Beach will necessitate a thorough review of potential project impacts.

At this time, we recommend the continuation of pre-construction studies, as previously coordinated with this office, to include observations of the piping plovers and roseate terns in the offshore project area. We also recommend that the Corps review and address the following questions relative to this proposal. This office believes these questions are germane to the LIPA's proposed wind park.

- Are migration routes along the coast or offshore? At what distance? At what altitudes?

- Do the migrating piping plovers and migrating, breeding, and/or staging

roseate terns fly during the day, night, or both?

- If either of the species fly at night, are they affected by (attracted to, disoriented by) aviation warning lights?

- In addition to collision dangers, could the presence of wind turbines deter migrating plovers and terns from using important stopover sites?

- Are these species' migration patterns the same in the spring and fall?

This information should be provided to the Service for use in assessing the potential effect to the piping plover and roseate tern from offshore activities. Through the informal consultation process, we will discuss with the Corps and applicant other surveys and studies which might assist in addressing some of the questions provided above. The Service will also be reviewing the studies recommended to the Corps resulting from public and agency review of the Cape Wind Project in Massachusetts.

Based on distance to the nearest known habitat, seabeach amaranth is not likely to be adversely affected by offshore construction or operation of the wind facilities. Seabeach amaranth and piping plover may be affected by projects that include onshore staging areas, or by cables passing through sandy beach areas that provide suitable habitat. However, there is a lack of specific information on construction activities such as timing, staging and equipment storage areas, construction limits, and access. The Corps and the Service should be provided with more detailed information regarding onshore activities to assess potential effects to nesting plovers and seabeach amaranth.

For piping plovers, the Service generally recommends a seasonal restriction on construction activities within suitable piping plover habitat during the breeding season in order to avoid direct impacts associated with onshore construction activities. When unfledged chicks are present, vehicles and motorized construction equipment are usually prohibited within 1,000 meters (1,094 yards) of chicks unless an intensive monitoring program, approved by the Service, is in place. The Service should be provided with a construction timetable for any onshore staging activities. For seabeach amaranth, the Service will likely request that a qualified biologist conduct a survey of the affected areas to determine the absence or presence of this species. The results of any survey must be forwarded to the office for review. Survey reports should include the survey method used and the qualification of the surveyor. If no beach habitats will be disturbed as a result of project implementation, the Service will need documentation to that effect.

On July 11, 2005, we received a letter from the Corps requesting initiation of Section 7 consultation for this project. In that letter, the Corps determined that three Federally-listed species under the Service's jurisdiction may be present in the vicinity of the proposed project area, and that the project has the potential to cause impacts to those species. The Corps attached to their letter a copy of the applicant-prepared *Threatened and Endangered Species Identification and Proposed Mitigation* package. We are reviewing these materials at this time. We want to remind the Corps that formal consultation will be necessary if impacts cannot be avoided. Minimization of impacts, while our shared goal, does not in itself avoid formal consultation procedures. We will continue to review these materials and request a meeting with you at your earliest convenience.

New York State Listed Species and Species of Special Concern

The proposed project area is located in the New York Audubon Society's designated Great South Bay and Captree Island Vicinity Important Bird Areas due to importance as a breeding area and migration route. This same area comprises portions of the NYSDEC's designated South Shore Tidal Wetlands Bird Conservation Area and supports the following New York State-listed species: peregrine falcon (endangered; *Falco peregrinus*), black rail (endangered), piping plover (endangered), northern harrier (threatened; *Circus cyaneus*), common tern (threatened; *Sterna hirundo*), least tern (threatened; *Sterna antillarum*), black skimmer (special concern; *Rhynchops niger*), horned lark (special concern; *Eremophila alpestris*), and seaside sparrow (special concern; *Ammospiza maritima*). All of the above species, with the exception of horned lark, are also included on the Service's Birds of Conservation Concern list (U.S. Fish and Wildlife Service 2002).

Summary

In summary, the Service requests that the Corps hold the permit application in abeyance until proper environmental studies can be completed by the applicants. Specifically, we recommend that the Corps initiate, under NEPA, the environmental scoping process to determine which studies are appropriate and necessary to gather additional information for the preparation of an EIS. The project scoping process should involve both the public and interested government agencies. As mentioned earlier, the Corps should consider the preparation of a PEIS for future offshore wind development which is expected along the eastern seaboard. If the Corps decides not to hold the permit application in abeyance, the Service objects to the issuance of a permit for this project based on the lack of relevant information on resources in the project area and the potential impacts to those resources.

We recommend the applicants evaluate the potential effects of the project on the significant habitats found in the project area and provide the results of this analysis in the EIS. This analysis should include potential direct and indirect habitat and water quality impacts from the installation, operation, and maintenance of the collection and transmission cables.

Likewise, we recommend that the Corps not issue a permit until adequate information is collected on the spatial and temporal use of the project's airspace by wildlife at all times of the year, and the information is fully evaluated through the NEPA, ESA Section 7 consultation, and other regulatory processes. The applicants should meet with the NYSDEC and the Service for additional discussions regarding avian studies, and develop protocols using technology such as marine radar equipment. Currently, the applicant's avian report does not provide comprehensive information and, therefore, the Corps cannot adequately and completely evaluate the potential project impacts at this time. The Service recommends 3 years of preconstruction studies to: 1) avoid the siting of preventable environmental hazards to migratory birds, and 2) provide an adequate information base from which decisions may be made should any migratory bird permits be required.

Additional information on piping plover and roseate tern movements in and through the project area at all times of the year is necessary to determine the project's potential effects on these species. Additionally, more detailed project information is needed to determine potential impacts to nesting plovers and terns as well as sea beach amaranth.

Please contact Timothy R. Sullivan at 607-753-9334 if there are any questions regarding this letter.

Sincerely,

/s/ Laury A. Zicari for

David Stilwell
Field Supervisor

cc: NYSDEC, Albany, NY (Env. Permits)
NYSDEC, Stony Brook, NY (Env. Permit)
EPA, Water Programs Division, New York, NY (Water Programs Div.)
NMFS, Milford, CT (D. Rusanowsky)
USWFS, Hadley, MA (A. Hoar)
USFWS, Wash. D.C. (A. Manville)
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Literature Cited:

American Bird Conservancy and U.S. Fish and Wildlife Service. 2000. Partners in Flight: Landbird Conservation Plan: Physiographic Region 9: Southern New England. Draft Report. 51 pp.

Audubon Society. 2005. Christmas bird count data for New York. Internet site: http://cbc.audubon.org/cbccurrent/current_table.html

Avian Power Line Interaction Committee. 1996. Suggested practices for raptor protection on power lines: the state of the art in 1996. Edison Electric Institute/Raptor Research Foundation, Washington, DC. 125 pp.

AWS Scientific. 2002. Long Island's Offshore Wind Energy Development Potential: A Preliminary Assessment. A Phase I Report prepared for the Long Island Power Authority. 35pp.

Bull, J. 1974. Birds of New York State. Doubleday/Natural History Press. Garden City, NY. 655 pp.

Clark, Kathleen E., and L.J. Niles. 2000. U.S. Shorebird Conservation Plan. Prepared by Endangered and Nongame Species Program, NJ Division of Fish and Wildlife, 2201 Route 631, Woodbine, NJ 08270 and Members of the Northern Atlantic Shorebird Habitat Working Group. 26 pp.

Danish National Environmental Research Institute. 2005. Internet site: (http://www.dmu.dk/Internatinoal/News/waterbirds+and+windmills.htm)

Franz Bairlein. 2004. Pers. communication with A.M. Manville, II. Institute of Avian Research. Wilhelmshaven, Germany.

Johnson, G.D., M.D. Strickland, W.P. Erickson and K.J. Bay. 2004. Spring migration avian report, Long Island offshore wind park, Jones Beach Island, New York. Western EcoSytemsTechnology, Inc. Cheyenne, WY. 74 pp.

Manville, A.M., II. 2005. Bird strikes and electrocutions at power lines, communication towers, and wind turbines: state of the art and state of the science – next steps toward mitigation. Bird Conservation Implementation in the Americas: Proceedings 3rd International Partners in Flight Conference 2002, C.J. Ralph and T.D. Rich, Editors. U.S. D.A. Forest Service, GTR-PSW-191, Albany, CA. 25 pp (in press).

New York State Department of Environmental Conservation. 1987. Internet site: http://nyswaterfronts.com/downloads/pdfs/sig_hab/LongIsland/Great_South_Bay_West.pdf

Planet Ark. 2005. Internet site: http://www.planetark.com/dailynewsstory.cfm/newsid/31542/story.htm)

U.S. Fish and Wildlife Service. 2004. Cape Wind Project Memorandum from Vern Lang, New England Field Office to Karen Adams, Regulatory Division, Corps' New England District Office. June 29, 2004.

U.S. Fish and Wildlife Service. 2002. Birds of Conservation Concern 2002. Division of Migratory Bird Management, Arlington, VA. 99 pp. Internet site: http://migratorybirds.fws.gov/reports/bcc2002.pdf

U.S. Fish and Wildlife Service. 1996. Significant Habitats and Habitat Complexes of the New York Bight Watershed. Southern New England-New York Bight Coastal Ecosystems Program. Charlestown, RI. 1025 pp.