A link between EMF exposure and alterations in the hormone melatonin was motivation to conduct research addressing a possible link between EMF exposure and breast cancer. While a number of smaller studies showed no association between EMF and breast cancer, the results of two large multiyear epidemiological studies were announced in 2003. The first, a study of over 1,100 women on Long Island was conducted by researchers at SUNY Stony Brook as part of the Long Island Breast Cancer Study Project, was the largest and thorough to-date. The study found no association between breast cancer and residential EMF exposures. The second study, led by the U.S. National Institute of Environmental Health, involved over 1,400 women in Los Angles and Hawaii. The study was careful to use a multiethnic population to control bias and also resulted in what the authors termed "a pertinent negative finding." The results of this study were in concurrence with previous studies and in the words of the authors "provide some reasonable reassurance to the public regarding this ubiquitous low-level exposure."

In a brief background piece in 2000, the World Health Organization discussed one way organizations have addressed concerns about EMF. "Since 1989, 'prudent avoidance' has evolved to mean taking simple, easily achievable, low cost measures to reduce EMF exposure, even in the absence of a demonstrable risk." The policy has been applied to new facilities, where modifications in design may reduce levels of public exposure at little additional cost. In its recent recommendations to Congress, the NIEHS recommended that "the power industry continue its current practice of siting power lines to reduce exposures and continue to explore ways to reduce the creation of magnetic fields around transmission and distribution lines without creating hazards."

At the present time, it is questionable whether exposure to magnetic fields is harmful, if certain levels of magnetic fields are safer or less safe than other exposure levels, or if exposure to a given field strength causes any adverse health effects.

Appendix D

Erosion Control Plan

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1.0 ENVIRONMENTAL PROTECTION AND MITIGATION

Specific environmental protection and mitigation measures have been developed for the Newbridge Road Connectors Project (the Project) to protect vegetation and water resources from damage due to erosion. To ensure compliance with these procedures and provide for environmental protection, the requirements outlined in this Erosion Control Plan will be incorporated into the Environmental Management and Construction Plan (EM&CP) that will be developed for this Project. The Environmental Coordinator and Project Compliance Manager, in conjunction with the Project Manager, Field Coordinators and the Natural Resources Manager, will ensure that the requirements of this Erosion Control Plan and other elements of the EM&CP are adhered to during the construction of the Project.

1.1 Vegetation

This section describes mitigation measures designed to minimize potential adverse impacts to existing vegetation from construction of the project along the various rights-of-way (ROWs). Generally, the width of the construction area will be approximately 30 feet and will include portions of roadways and vegetated ROWs. At specific manhole locations the width of the construction work area may be greater than 30 feet. Standard vegetation protection and clearing methods that will be utilized along the entire route are described below.

The objectives of the vegetation plan are to minimize damage to existing vegetation, treat or replace damaged or removed vegetation, restore disturbed vegetated areas, control erosion, and provide for appropriate clearing and disposal of vegetation which must be removed. Proper plant pruning procedures will be followed for vegetation clearing. Restoration of disturbed areas is discussed in Section 2.2 of this document and will consist of the following as required: topsoil replacement, seeding, fertilizing and mulching as well as any special plantings and landscaping.

1.1.1 Delineation of Existing Vegetation

Prior to construction, trees that require trimming and clearing will be identified and noted on the field-issued drawings. Photographs of areas in which significant tree trimming and/or

clearing will occur will be taken prior to construction activities. Tree removal and trimming activities must be approved.

1.1.2 Topsoil and Vegetation Protection

During excavation of the cable trench in vegetated areas, if there is an appreciable layer of topsoil it will be segregated from subsoils by scraping off the topsoil prior to excavation, if possible. The topsoil will be segregated from other soils, stored next to the trench in a location where it will not be subject to construction traffic. After the conduits have been installed in the trench, the trench will be backfilled, with the topsoil being placed on top of the sub-soils. To prevent wind erosion and dust problems while being temporarily stockpiled, the topsoil will be sprayed with water or covered and staked when necessary.

Trees and shrubs that will not be removed during construction will be protected from injury. In areas where construction is immediately adjacent to trees and shrubs and there is a high potential for damage to the vegetation, temporary fencing will be erected parallel to the trenching operation so as to reduce the possibility of accidental damage to trees and shrubs due to construction equipment. If necessary, trees within proximity of the trench and in danger of being damaged by construction equipment will be protected with timber-framed boxes appropriately sized to protect them. The frame will be self-supporting to avoid tree damage, with the support posts for the frame placed to avoid damage to major tree roots. Other protective measures, such as tying of branches and wrapping in burlap may be employed if deemed necessary by the Natural Resources Manager.

Visual surveys to assess vegetation damage will be routinely conducted by the Project Compliance Manager and/or the Natural Resources Manager.

Signs, barricades, or other material will not be secured to trees or shrubs.

No pesticides or herbicides will be used on the Project.

1.1.3 Vegetation Trimming and Necessary Removal

Generally, the construction route was designed to minimize trimming and removal of trees and shrubs however some tree trimming will be required. In those areas where clearing is necessary, the ROW will be clearly flagged so that only those trees within the certified corridor

will be cleared. Tree removal will be kept to the absolute minimum required for safe and efficient installation of the conduits, especially in those areas of the project adjacent to residential properties. By doing so, existing sound attenuation attributable to natural vegetation will be maintained as much as possible. Tree and shrub removal will be conducted according to standard tree removal practices and performed by experienced and qualified personnel. These personnel will operate under the direction of the Natural Resources Manager. Roots and stumps of removed trees will be excavated and removed to a depth not less than 18 inches below existing ground level. Shrub stumps and roots will be excavated on an individual basis as determined by the Project Compliance Manager. Tree clearing will not obstruct public roadways or walkways, other existing utilities, paths and other similar improvements.

Trees, shrubs, and branches planned for removal will be identified by the Project Compliance Manager prior to construction. The Project Compliance Manager will work with the Natural Resources Manager and the Contractor to minimize impacts. Areas outside of the boundaries of the certified corridor will not be cleared.

Tree trimming will be conducted by qualified and approved personnel in accordance with recognized tree surgery practices. Approval of tree trimming and removal personnel will be the responsibility of the Natural Resources Manager.

Cleared vegetation will be disposed of by chipping and hauling off site for disposal. Chips will not be spread on the ROW.

1.1.4 Plant Root Protection and Excavation Methods

Generally, the construction trench will be excavated to a depth of approximately 5 feet and a width of approximately 42 inches. The trench was designed to accommodate three twelve inch HDPE conduits in a trefoil configuration at a nominal depth of 42 inches below grade.

To the extent possible all trenching, equipment lay down and vehicle access will take place within an existing ROW. The width of the ROW varies along the route. In designated areas where the trench will be directly adjacent to mature or significant trees, special precautions will be taken so as not to disturb the roots of these trees. Excavations will be kept to the absolute minimum size necessary to safely and efficiently install the conduits. Whenever large tree roots

are encountered, and excavation by mechanical means could cause significant damage to the roots, further excavation in the root vicinity will be done by hand.

Tree roots will be protected from damage. If roots need to be or accidentally become severed, roots will be cut clean and natural resins will be allowed to seal the cuts. Roots will be exposed for the minimum amount of time required for excavation, conduit installation, and back-filling of the trench.

1.1.5 Ground Cover Protection

To the extent possible, construction activities will avoid damage to existing grass and other ground cover. Construction and ancillary activities will be confined to the smallest possible area required for safe and efficient installation of the cable.

Stockpiling of debris and construction materials or storing of equipment on unpaved areas will be permitted only in predesignated areas at the direction and/or with the approval of the Project Compliance Manager.

1.2 Water Resources

The protection of groundwater resources is a primary objective of this Erosion Control Plan. Specific protection measures are discussed below.

1.2.1 Groundwater Resources

The Applicant will ensure that excavation and grading will be performed in such a manner that the site will be effectively drained. It is not anticipated that any water diversion devices will be required on the Project. Water will be able to drain naturally. Existing drainage patterns will not be permanently altered.

It is not anticipated that any dewatering will be required on this project. However, if it is required, the Project Compliance Manager will be immediately notified, prior to any dewatering. Any dewatering will be performed in accordance the requirements of the Storm Water Pollution Prevention Plan (SWPPP).

1.3 Erosion and Drainage Control

The potential for erosion at a construction site is determined by the existing soil, slope, rainfall intensity and planned construction methods. Erosion and sedimentation can be controlled effectively if certain principles are followed in the use and treatment of the construction area. These principles are:

- Leaving the trench and stockpiled material exposed for the shortest time possible;
- Reducing runoff velocity and directing runoff;
- Detaining runoff and trapping sediment; and
- Releasing runoff safely to existing storm drains.

These principles will be applied to the Project construction areas. Erosion control practices, which will be followed for the duration of the Project, will include a planned rapid construction period and minimum time period where the trench will be left exposed. Grading will occur on those areas planned for immediate construction to minimize potential runoff. A minimal construction area will be maintained. Permanent vegetation will be re-established as soon as possible following construction in unpaved areas.

During trench excavation, materials that are temporarily stockpiled will be protected from erosion through the use of temporary measures, such as hay bales or silt fencing. To prevent wind erosion and dust problems, the stockpiles will be sprayed with water or covered and staked if necessary. Excavated material will not be stockpiled along public streets.

If dewatering of the trench is necessary, the water will be filtered through a sediment filter bag prior to discharge in order to trap sediment and to help diffuse the flow of water. Diffusion of the flow will help reduce the potential of soil scouring. Any sediment trapped within the filter bag will be removed at the conclusion of the dewatering operation and returned to the trench during backfill operations.

Where necessary, disturbed areas will be protected with mulch. Mulch is essential in establishing good groundcover where it is difficult to establish plants. By reducing runoff, the mulch will allow more water to infiltrate the soil and reduces the loss of soil moisture by evapo-

ration. It also helps to hold seed in place and reduces seedling damage from soil heaving caused by freezing and thawing.

Hydro-seeding (or hydro-mulching), in which grass seed, fertilizer and mulch are applied as a slurry will be used on grassy roadway shoulders, especially along the unpaved road shoulders traversed west of the Shinnecock Canal.

A temporary grass cover or jute netting will be used in areas where revegetation may take longer. Jute netting, a coarse, open-mesh, web-like material, may be applied directly on the soil to protect exposed soils and newly seeded areas, and to hold down straw mulch.

2.0 RESTORATION

Vegetation restoration for the construction areas will include preparation of the soil for subsequent plantings, application of topsoil (if necessary) on unpaved areas, and the seeding of grass and planting of shrubs and trees. The Natural Resources Manager will survey vegetation restorations and record vegetation areas and plantings that are not satisfactory. Vegetation plantings will be performed by a qualified nursery and supervised by the Natural Resources Manager. Restoration also includes the repair and replacement of sidewalks, curbs, and road pavement. Temporary restoration, including hydroseeding or mulching of grassy areas and temporary paving of disturbed roadways will be performed within 10 days of backfilling of the trench. Final restoration will be performed in conformance with the time frames detailed below. The Applicant will notify the Commission within 10 days following completion of final restoration.

2.1 Cleanup and Disposal

Cleanup and disposal of vegetation will occur on a daily basis during trimming and construction clearing. Cleared vegetation will not be burned, buried or stockpiled along the ROW, and will be removed at the end of each workday wherever and whenever possible. Cleared vegetation will be disposed of by chipping and hauling. Obstructions caused by cleared materials will be removed as soon as possible during the workday.

All debris resulting from demolition, clearing, grubbing or stripping will be disposed of at an approved construction debris disposal area in compliance with all applicable regulations. Trucks leaving the work site will be safely loaded and covered. Prior to construction, the Applicant will obtain the locations of proposed disposal sites from the Contractor.

Upon completion of temporary paving all excess sand and backfill material will be hauled from the work site and roadways will be swept clean. No equipment, tools, sheathing, signs, lights, barriers or debris will be left at a completed section of the pipeline.

2.2 Vegetation

Vegetation restoration will consist of one or more of the following: replacement of damaged and removed trees, shrubs and ground cover, soil stabilization and placement of appropriate

topsoil, and reseeding of grass areas. Furnishing and replacement of vegetation and topsoil are discussed in the following sections.

2.2.1 Soil Stabilization, Aeration, and Fertilization

In unpaved areas, and where deemed necessary and feasible by the Natural Resources Manager, pre-existing topsoil will be re-applied over the closed trench. No topsoil from off-site will be brought in. Excess soils will be removed from the site, although excess topsoil may be used in other areas along the project route where it is needed.

Foreign materials and any contaminated soils will not be used for topsoil. Following placement of topsoil, the area will be raked and large stones, rocks, and weeds will be removed. The replaced soil will be properly graded to conform to existing ground level. The topsoil will be worked and applied under dry conditions.

No chemical fertilizers will be used. If deemed necessary, naturally derived peat humate and mycorrhizae biostimulants will be added to the soil to enhance plant establishment.

2.2.2 Mulching

Mulch will be applied to areas that will be seeded in erosion prone locations and can also be used to protect areas brought to final grade at an unfavorable time for seeding or plant transplanting. The areas can then be planted when the time is appropriate without removing the mulch. Mulch will also be applied to the immediate vicinity of replacement plants to encourage the retention of moisture. Mulching will reduce loss of soil moisture by evaporation and will decrease the possibility of seedling damage from soil heaving caused by freezing and thawing.

Mulch will be spread uniformly in a continuous blanket of sufficient thickness. The mulch may be spread by hand or machine. Mulch may be spread before or immediately after planting. Anchorage, such as jute mesh, will be used as required.

See Section 1.3 - Erosion and Drainage Control for additional information concerning mulching.

2.2.3 Vegetation Plantings

A detailed preconstruction vegetative survey, complete with photographs, will be performed by the Natural Resources Manager.

Trees, shrubs, grass and groundcover plants removed or damaged as a result of construction activity will be replaced if deemed necessary by the Natural Resources Manager. An assessment of damage to remaining trees and shrubs will be conducted one growing season following construction to record latent damage. Construction-related damage will be determined by the Project Compliance Manager and Natural Resources Manager, with consideration given to the condition of the tree at the time of construction as recorded during the vegetation survey.

Remedial repairs will be made to trees damaged by construction activities. Repairs will be completed by an experienced tree surgeon. The Natural Resources Manager, or authorized representative, will identify all trees, shrubs and groundcover plants necessary for replacement and will supervise the plant replacement.

Replacement trees, shrubs, and other groundcover plants will be of species typical of the area depending on nursery availability. In natural areas, the area will be reseeded with native grass species and tree seedlings will be planted. In improved areas, the areas will be reseeded with native grass species and native or non-native trees and shrubs will be planted to replace landscape trees. Agreements will be established with adjacent property owners to provide the newly planted trees and/or shrubs with adequate water.

Plants which fail to meet specifications as described by the American Standard for Nursery Stock will be rejected by the Natural Resources Manager. All plants will be properly protected from damage or drying during transport between the nursery and time of planting.

The Natural Resources Manager will direct the Contractor, who will furnish, plant, dig, transplant, fertilize and replace all plant material. Tree and shrub planting methods will follow New York State Department of Transportation standard planting specifications. All plantings will have a one-year replacement guarantee.

The Applicant will coordinate ROW maintenance schedules and techniques so as to prevent damage to plantings.

2.2.4 Groundcover Restoration

Damaged groundcover will be repaired by regrading and hydro-seeding equivalent to the existing grassy turf type. The entire seeded area will be watered with a fine spray until a uniform moisture depth of 1 inch has been obtained. If hydro-seeding is not feasible appropriate grass seed will be utilized. Seeding may be performed by means of broadcasting or drill seeding. Mulching and anchoring the mulch may be necessary in some areas. Upon final restoration, groundcover will be a minimum of 70%.

2.2.5 Planting Time Periods

Seeding will be conducted during optimal time periods which are approximately between April and May for spring seeding and approximately August and September for fall seeding. Seeding will not be permitted during high winds or when the ground surface is too wet or too dry for proper working.

Appendix E

Public Involvement Plan

Statutory Service of the Application and Public Outreach Activities

Statutory Service

In accordance with Section 122 of the Public Service Law of New York State, LIPA has complied with the requirements for service of the instant Article VII application for the Newbridge Road Connectors. Each chief executive officer of the municipality in which any portion of the proposed facility, or in the alternative locations described in this Application, has been served with a copy of the Application. (See Service List.) The State statutory parties have also been served as well as members of the State and county legislatures through which the proposed or alternate routes pass. In addition, a summary of the application has been published once a week for two consecutive weeks prior to the filing in Newsday.

Public Outreach Activities to Elected Officials

In addition to written notice, in-person or telephone meetings have been held with the following members of the Nassau County Legislature: Second District Legislator - Hon. Roger Corbin; Thirteenth District Legislator – Hon. Norma Gonsalves; Fourteenth District Legislator – Hon. David Mejias; Fifteenth District Legislator – Hon. Dennis Dunne, Sixteenth District Legislator – Hon. Judith Jacobs; and, Seventeenth District Legislator – Hon. Edward Mangano. Meetings were held with New York State Legislators or their staffs, including Tenth District Assemblyman – Hon. James Conte, Twelfth District Assemblyman – Hon. Joseph Saladino; Thirteenth District Assemblyman – Hon. David Sidikman; Fifteenth District Assemblywoman Donna Ferrara; Seventeenth District Assemblywoman Maureen O'Connell; Nineteenth District Assemblyman David McDonough; Sixth District State Senator – Hon. Kemp Hannon; Fifth District State Senator – Hon. Carl Marcellino; and Seventh District State Senator – Hon. Michael Balboni. Meetings were held with the Town Supervisors or their staffs including Hempstead Town Supervisor - Hon. Kate Murray; Oyster Bay Town Supervisor – Hon. John Venditto; and, Huntington Town Supervisor – Hon. Frank Petrone. Meetings were held with staff at the office Nassau County Executive – Hon. Thomas Suozzi.

Public Outreach to Affected Entities

LIPA personnel met with representatives from the State University of New York at Farmingdale to address route concerns. After productive discussions, route amendments were made to accommodate the University's concerns. These changes have been adopted into the proposed route for the Project.

Meetings were also held with New York State Office of Parks, Restorations and Historic Preservation (NYS Parks) with both regional personnel and Albany staff. Discussions involved zero impact and disturbance to the Bethpage State Park "Black" golf course, as the NYS Park will again be hosting the United States Open Golf Tournament. LIPA engineering staff has designed route alternatives which completely avoid the course and propose to directional drill under mature trees and plantings, causing little or no disruption to the Park.

In contemplation of soil sampling disruption to affected areas of the community, LIPA developed a fact sheet and distributed it to Customer Relations personnel at LIPA Headquarters and at the Call Center in Melville. Environmental personnel have been instructed to refer any questions to LIPA community relations personnel. Community Relations personnel at LIPA have access to supervisors at the soil sampling sites to address any query that may arise.

Prospective Public Involvement Activities to the Public

The Article VII application will be made available on the Long Island Power Authority Web site, www.lipower.org and will include an interactive map allowing residents to see representative portions of the proposed route by clicking on numbers corresponding to locations on the map. LIPA will also hold an open house on the project, noticing homeowners along the proposed and alternate routes. Through the use of handouts and other informational media, the Open House will provide information concerning subjects such as site selection, underground construction methodologies, the need for the project, the growing electric demands of the Long Island region, and potential environmental impacts. Notice to property owners located adjacent to the proposed and alternate rights-of-way will be by regular mail. A special project hotline will also be established for public inquiries and comments.

Appendix F

Appendix F

Prefiled Testimony

Joint Testimony F-1

Testimony of J.F. Ordon and Christopher Corrado.....F-39

Curricula Vitae F-51

Joint Testimony

STATE OF NEW YORK
PUBLIC SERVICE COMMMISSION

Application of Long Island Power Authority for a Certificate of Environmental Compatibility and Public Need for the Construction and Operation of the Newbridge Road Connector Project Pursuant to Article VII of the Public Service Law

Case _____

DIRECT TESTIMONY OF A JOINT PANEL OF WITNESSES CONSISTING OF JAMES PARMELEE, GARY J. PETSCHAUER, CURT J. DAHL, GREGORY NETTI, LEONID SHMOOKLER AND THOMAS SIENER

ON BEHALF OF THE LONG ISLAND POWER AUTHORITY

DECEMBER 2004

I. INTRODUCTION

Q. First, the members of the Panel will be introduced. Mr. Parmelee, please state your name, title business address and summarize your educational and professional background.

A. My name is James Parmelee. I am Director of Power Markets for the Long Island Power Authority ("LIPA"). My business address is 31 Brinker Drive South, Rensselaer, New York 12144. I received a B.S. and M.S. degree in nuclear engineering from Rensselaer Polytechnic Institute in 1977 and 1978, respectively. I also undertook coursework in electric power engineering at Rensselaer Polytechnic Institute from 1981 to 1983. From 1979 to 1995, I was employed by the New York State Energy Office. From approximately 1984 to 1995, I was Chief Electric Planner for the Energy Office. While there, I was responsible for the analysis and/or development of the Electricity Section of every State Energy Plan issued from 1979 to 1993, and I directed and participated in studies regarding the development and expansion of the New York State electric power system, resource planning, and power plant siting. In 1995, I joined Resource Management International, a consulting firm, which later was acquired by and became part of Navigant Consulting. At Resource Management International and Navigant Consulting, I held positions of increasing responsibility, serving as Director from 1999 through the end of 2000. While at Navigant Consulting, I evaluated various aspects of the Independent System Operator - New England ("ISO-NE"), the PJM Interconnection and the California Independent System Operator. I also served on the steering committee that managed the development of the New York Independent System Operator ("NYISO") and was a member of the working group addressing the design of the NYISO. Additionally, I coordinated LIPA's NYISO policy, managed the development of LIPA's Long Island Choice Program and advised LIPA on bidding

and power procurement strategies. I joined the Long Island Power Authority at the end of December 2000.

My responsibilities as Director of Power Markets include overseeing LIPA's participation in the NYISO and ISO-NE markets as well as long-term strategic planning matters. As Director, I am involved in LIPA's efforts to meet its installed capacity needs. Further, I oversaw the development of LIPA's recently issued Energy Plan which assessed the generation and transmission resources on Long Island and laid out a long-term plan for addressing Long Island resource needs.

Prior to joining the Long Island Power Authority, I testified as an expert witness before the Federal Energy Commission, the Nuclear Regulatory Commission, New York State Public Service Commission, the New York State Department of Conservation, the New York State Planning Board, the New York State Siting Board, and the Vermont Public Utility Commission. Since joining the Long Island Power Authority, I have provided testimony before the Federal Energy Regulatory Commission in Devon Power LLC, et al. Docket No. ER03-563-030, Suffolk County Electrical Agency, Docket No. TX96-4-001, Cross Sound Cable Company, LLC, Long Island Power Authority and Long Island Lighting Company d/b/a LIPA, Docket No. TX04-3-000 and Northeast Utilities Service Company, Docket No. TX04-1-000; as well as before the New York State Board on Electric Generation Siting and the Environment in Brookhaven Energy Limited Partnership, Case No. 00-F-0566.

Q. Mr. Petschauer, please state your name, title, business address and summarize your educational and professional background.

A. Gary J. Petschauer, Manager, Substation and Transmission Engineering, KeySpan Engineering & Survey, Inc., a KeySpan Corporation subsidiary, 175 East Old Country Road, Hicksville, New York 11801. I received a Bachelors of Science degree in Electrical Engineering

from Polytechnic Institute of New York in 1975 and a Masters in Electrical Engineering from Polytechnic Institute of New York in 1978, a Masters in Management from Polytechnic Institute of New York in 1983 and I am a registered professional engineer in New York State since 1980. Since 1975, I have held various positions in Engineering, Operations, Customer Relations and Industrial Relations within the Long Island Lighting Company. In 2002, I became the Manager of the Substation and Transmission Engineering of KeySpan Energy and Survey, Inc.

Q. Mr. Dahl, please state your name, title, business address and summarize your educational and professional background.

A. Curt J. Dahl, Manager, Electric System Planning, KeySpan Utility Services LLC, a KeySpan Corporation subsidiary, 175 East Old Country Road, Hicksville, New York 11801. I received a Masters of Science in Electrical Engineering from Polytechnic Institute of New York in 1997, a Masters of Business Administration from Hofstra University in 1993, and a Bachelors Degree in Electrical Engineering from Polytechnic Institute of New York in 1987. I am a Registered Professional Engineer in New York State and have over 17 years of professional experience that includes various positions in the areas of bulk transmission planning, resource planning, special system studies, and subtransmission planning. I have been Manager, System Planning since 1997. From 1994 to 1997, I was a Supervisor in the Generation Planning group where I was responsible for: preparing financial studies; recommending capital enhancements to LILCO power plants; addressing open access and market power issues, assisted in the development of emissions compliance strategies; and, negotiating energy and capacity agreements. From 1992 to 1994, I was Supervisor of the Subtransmission Planning group, where I developed short and long term expansion plans for the Long Island subtransmission system. From 1987 to 1991, I worked in the Transmission Planning Group where I was responsible for developing capital expansion plans for the Long Island bulk power system including interconnection requirements

for various generation projects and IPP proposals. Currently, I represent LIPA on several NYISO committees and am Chairman of the New York State Reliability Council Installed Capacity Subcommittee.

Q. Mr. Netti, please state your name, title, and business address and summarize your educational and professional background.

A. Gregory Netti, senior environmental scientist, Ecology & Environment Inc, 368 Pleasant View Drive, Lancaster, New York, 14086. I received a B.A., Environmental Planning/Resource Management, State University of New York College at Plattsburgh in 1996. I have eight years' experience managing environmental investigations and leading natural resource surveys (terrestrial ecology, wetlands, topography, soils, water resources), and socioeconomic, land use and traffic/transportation evaluations for large utility projects, industrial and commercial facilities, transportation/infrastructure development, and urban/residential development.

Q. Does your curriculum vitae, which is attached, fairly and accurately represent your experience?

A. Yes.

Q. Mr. Netti, please describe your role in the Project described in the Application which is the subject of this Article VII proceeding.

A. I was responsible for the management and oversight of the studies and field activities performed to determine the impact of the Project on the environment. I lead the field team and wrote the sections of the report that evaluated impacts on wetlands, vegetation, wildlife, and threatened and endangered species. I oversaw the activities associated with the evaluation of land use, visual, soils and water impact evaluations. I provided input regarding resource impacts to the alternatives evaluation process.

Q. Mr. Netti, are you familiar with the installation methodologies and equipment proposed for the Project?

A. Yes.

Q. Messrs. Parmelee, Netti, Dahl and Petchauer, were the Exhibits in the Application to the New York State Public Service Commission for a Certificate of Environmental Compatibility and Public Need ("Application") for the Construction and Operation of the Newbridge Road Connector Project (the "Project") prepared under the direction and supervision of the various members of the Panel?

A. Yes. The following Exhibits accompanying LIPA's Application were prepared under our direction and supervision:

Exhibit 1 General Information

Exhibit 2 Location of Facilities

Exhibit 3 Alternatives

Exhibit 4 Environmental Impact

Exhibit 5 Design Drawings

Exhibit 6 Economic Effects of the Proposed Facility

Exhibit 7 Local Ordinances

Exhibit 8 Other Pending Filings

Exhibit 9 Cost of Proposed Facility

Exhibit 10 (E-1) Description of the Proposed Transmission Line

Exhibit 11 (E-2) Other Facilities

Exhibit 12(E-3) Underground Construction

Exhibit 13(E-4) Engineering Justification

Exhibit 14(E-5) Effect on Communication & Electromagnetic Fields

Exhibit 15(E-6) Effect on Transportation

Q. Mr. Shmookler, please state your name, title, and business address and summarize your educational and professional background.

A. Leonid Shmookler, Senior Archaeologist and Principal Cultural Resource Investigator, Ecology & Environment Inc, 368 Pleasant View Drive, Lancaster, New York 14086. I received a M.A., in Anthropology, from Columbia University, a B.A., in Anthropology, from Columbia University and a Certificate from the Department of History, Leningrad University, Russia. I have 32 years' experience in the performance of cultural resource investigations including archaeological surveys, evaluations and the development of mitigation projects.

Q. Does your curriculum vitae, which is attached, fairly and accurately represent your experience?

A. Yes.

Q. Mr. Shmookler, please describe your role in the Project described in the Application which is the subject of this Article VII proceeding.

A. I was responsible for the management of the field studies, file reviews and archeological evaluations performed to determine the impact of the Project on historic and cultural resources. I prepared section 4.5 of Exhibit 4 of the Project's Article VII application.

Q. Mr. Shmookler, are you familiar with the installation equipment and methodologies proposed for the Project?

A. Yes.

Q. Mr. Siener, please state your name, title, and business address and summarize your educational and professional background.

A. Thomas Siener, Senior Environmental Scientist, Ecology & Environment Inc, 368 Pleasant View Drive, Lancaster, New York 14086. I received a B.S., in Biology, from Purdue University.

I am a board certified industrial hygienist. I have over thirty years of experience in noise modeling, the development of noise monitoring programs and technical guidance for industry.

Q. Does your curriculum vitae, which is attached, fairly and accurately represent your experience?

A. Yes.

Q. Mr. Siener, please describe your role in the Project described in the Application which is the subject of this Article VII proceeding.

A. I was responsible for the development and implementation of the studies, to determine the noise impacts of the Project. I prepared Section 4.10 of Exhibit 4 of the Project's Article VII Application.

Q. Mr. Siener, are you familiar with the installation methodologies and equipment proposed for the Project?

A. Yes.

Q. What is the purpose of the Panel's testimony?

A. We will discuss the principal Exhibits contained in LIPA's Application. The electric and magnetic fields study which is in Appendix C to this Application will be discussed in the separate testimony of Thomas Ordon and Christopher Corrado.

II. DESCRIPTION OF THE PROJECT AND CONSTRUCTION DETAILS

Q. Please provide a description of the proposed Project.

A. LIPA proposes to construct and operate a new underground transmission facility that consists of approximately 13 total circuit miles ("the Newbridge Road Connector Project" or "the Project") enabling full receipt and delivery of capacity and energy from the Neptune Regional Transmission System ("NeptuneRTS") project. The Project consists of two underground solid

dielectric circuits extending in opposite directions from LIPA's Newbridge Road Substation ("Newbridge Substation") and are referred to as the Eastern Connector and Western Connector respectively. The Western Connector will extend west for approximately four miles from LIPA's Newbridge Substation to its East Garden City Substation ("EGC Substation"), and the Eastern Connector will extend east for approximately nine miles from LIPA's Newbridge Substation to its Ruland Road Substation ("Ruland Substation").

Each Connector will consist of three (3) single-phase solid dielectric cables. Each of the three cables will be constructed of 2,000 mm^2 copper segmental conductor approximately 2.1 inches in diameter, with cross-linked polyethylene insulation and rated at 345 kV alternate current ("AC"), but initially operating at 138 kV AC. A corrugated aluminum metallic sheath will surround the insulation to provide protection and to prevent water migration into the cable. An outer polyethylene jacket will encase the metallic sheath. In all, the cable will measure approximately 6 inches in diameter. Figure 5-1 of Exhibit 5 illustrates a typical cable cross section.

Each cable will be installed within a 12-inch high-density polyethylene ("HDPE") conduit. In addition to the 12-inch conduits, two (2) 1.5 inch polyethylene fiber optic cable conduits will also be installed for the 345 kV rated underground circuit. The transmission cable conduits will be installed in a set of three with a trefoil (triangular) configuration. The fiber optic cable conduits will be installed on either side of the transmission cable conduits. The nominal depth to top of conduit shall be 42 inches below grade, unless field conditions require otherwise. It is expected that manholes will be placed approximately every 1500 circuit feet, in which the cables will be spliced and its cable sheaths cross-bonded. Attachment 5-2 of Exhibit 5 shows route drawings and cross-sectional views of the cables and trenches at various locations along the respective routes of the Western and Eastern Connectors.

Q. What is the proposed route of the Eastern Connector and why was it chosen?

A. The Eastern Connector will consist of a new 345 kV underground transmission circuit between the existing Newbridge and Ruland Substations. This transmission circuit of approximately nine miles will be located almost entirely within properties controlled by other New York State agencies, such as the Long Island Rail Road ("LIRR"), Metropolitan Transportation Authority ("MTA"), New York State Department of Transportation ("NYSDOT"), New York State Office of Parks, Recreation and Historic Preservation ("OPRHP"), and Farmingdale State University.

From the termination structure in the Newbridge Substation, the Eastern Connector will exit the Newbridge Substation at its northeastern property line and travel eastward along the 60-foot wide LIRR right-of-way ("ROW") for approximately four miles to the west side of the Seaford Oyster Bay Expressway (NYS-135) in the Town of Oyster Bay. The Eastern Connector will be directionally drilled eastward under the Seaford Oyster Bay Expressway and will exit onto the grass area along the Expressway's east side.

The Eastern Connector route will run north along the Seaford Oyster Bay Expressway for just over one mile with a typical offset of approximately 30 feet from the "fog line" of the road (as was constructed for the Riverhead to Southampton Underground Cable Project along Sunrise Highway [NYS-27] in 2000). From the Seaford Oyster Bay Expressway, the route turns northeast on to Bethpage State Park along a park roadway through the northwest section of the park to a point just south of Barry Lane in the Town of Oyster Bay in Nassau County. The route then continues eastward to the west side of Round Swamp Road, from where it runs south along Round Swamp Road to the intersection with Winding Road. The Eastern Connector route turns northward on Winding Road, then turns northeast and extends through a forested area on

Bethpage State Park to an open field on Farmingdale State University property, which lies in the Town of Huntington in Suffolk County.

The Eastern Connector continues through the Farmingdale State University property adjacent to an existing LIPA three-circuit overhead transmission line to New York State Route 110 ("NYS Rte 110"). At NYS Rte 110, the Eastern Connector will be directionally drilled north-eastward under NYS Route 110 and enter upon a ROW owned by LIPA. The Eastern Connector route finally crosses one privately-owned property for which LIPA will secure an easement and then ends at LIPA's Ruland Substation. The Eastern Connector will terminate at a 345 kV/138 kV transition terminal in the Ruland Substation. A detailed description of the Eastern Connector route and associated construction can be found in Exhibits 2, 5, E-1 and E-3.

This route is optimal because it will have the fewest environmental impacts in that it will minimize the total distance of the route, reduce construction time and minimize impacts to traffic flow and access to homes during construction. It will also avoid or minimize engineering and property acquisition constraints. Generally, the alternative routes considered were all expected to be more expensive, take longer to construct, and create a greater impact on the surrounding communities and/or the environment than the preferred route. Unlike the alternative routes, the preferred route will mainly utilize existing rights-of-way where the environment has already been disturbed, construction is more straightforward, traffic disturbances are minimized and the overall community impact is reduced.

Q. Describe the proposed route for the Western Connector.

A. The Western Connector will connect the existing Newbridge and EGC Substations. This four mile transmission circuit will be located almost entirely within the existing LIRR ROW. The Western Connector will exit the EGC Substation at its southern property line, travel south across the LIRR ROW to Commercial Avenue. At Commercial Avenue, the route heads

eastward for approximately 0.5 miles along Commercial Avenue and migrates onto the 60-foot wide LIRR ROW for approximately 3.5 miles to its entrance into the Newbridge Substation, located in the Town of Hempstead, Nassau County, New York. Along the 4-mile route, the Western Connector will be directionally drilled under the Meadowbrook and Wantagh State Parkways and travel through the Nassau County Eisenhower Park to the Newbridge Substation. Figure 2-1 shows the proposed route.

Q. Describe the method of installation that will be used for the Project.

A. A combination of open trench and jacking or directional drill techniques will be used in the construction and installation of the Eastern and Western Connectors. Consistent with the goal of the preferred route, which is to minimize any disturbance to the environment, residential communities, retail business districts, parks, vehicular traffic, and railroad crossings, open road cutting will be avoided to the maximum extent practicable. This is facilitated by the fact that approximately seventy two percent (72%) of the proposed Project route is within existing ROWs. The open trench will be excavated to a nominal depth (to top of conduit) of 42 inches below grade. Manholes are expected to be placed approximately every one 1,500 circuit feet. Please refer to Exhibit E-3 for additional details on construction methods.

Q. Where along the route will directional drilling be used as opposed to trenching?

A. Directional drilling will be used at the seventeen locations listed in Exhibit E-3. The remainder of the route will be trenched.

Q. Please describe the construction that will be conducted at the three Substations to accommodate the two Connectors.

A. In order to accommodate the Western Connector, the following will have to be installed at the EGC Substation: (i) a 345 kV/138 kV underground transmission cable transition terminal, (ii) a 138 kV SF6 circuit breaker, (iii) disconnect switch(es), and (iv) control and protection

instrumentation. The existing ring bus will be modified to accept a new 138 kV AC SF6 circuit breaker for the new 138 kV cable connection.

The Newbridge Substation will see a similar process. The 345 kV underground cable of the Western and Eastern Connectors will be interconnected to the 138 kV bus. A 345 kV/138 kV underground transmission cable transition terminal, a 138 kV SF6 circuit breaker, disconnect switch(es), and control and protection instrumentation will also be installed for each Connector at Newbridge. The 345 kV/138 kV underground terminal will transition the new 345 kV underground cable to a 138 kV underground cable within the Newbridge Substation so that an interconnection into the 138 kV bus may be made. This equipment will be installed to accept the Eastern Connector and the Western Connector. A new 345 kV Gas Insulated Substation ("GIS") bus arrangement will be built to support the NeptuneRTS 345 kV underground cable connection at the Newbridge Substation.

At Ruland Substation, the 345 kV underground cable of the Eastern Connector will be interconnected to the 138 kV bus. A 345 kV/138 kV underground transmission cable transition terminal, 138 kV SF6 circuit breaker, disconnect switch(es), series inductor, and control and protection instrumentation will also be installed at Ruland Substation to accommodate the Eastern Connector. The 345 kV/138 kV underground terminal will transition the new 345 kV underground cable to a 138 kV underground cable within Ruland Substation so that an interconnection into the 138 kV bus can be made at Ruland Substation.

Additional work will also be performed at Ruland Substation that is not related to this Article VII filing. The additional work is designed to convert the existing 138 kV ring bus to a breaker and a half scheme for additional system reliability purposes.

Q. How long will the construction take?

A. The Project, including the modifications at the three (3) substations as well as the installation of the cable, is expected to be completed in late 2006/early 2007. This will ensure that the Project will be available when the commercial operation of NeptuneRTS begins on July 1, 2007.

III. ALTERNATE ROUTES AND ALTERNATE TECHNOLOGY

Q. Were any alternate routes considered for the Eastern Connector?

A. Yes. Three alternative routes were evaluated for the Eastern Connector. Each of these routes is described in Exhibit 3 of the Application and depicted on Figure 3-1.

Q. Describe the alternative routes and why they were not chosen as the preferred route.

A. The first alternative route calls for installation of the Eastern Connector along the LIPA 138 kV overhead transmission tower line that already exists along a ROW owned by multiple owners including residential, commercial and state entities. The ROW starts at Bethpage State Park and Barry Lane South and continues northeast *via* numerous easements through residential, commercial, and industrial properties to Ruland Road. This alternative route was not chosen for several reasons. First, a section of the tower line runs along a narrow, steep bluff which could not accommodate the Eastern Connector. Second, many private residential properties would be impacted. Third, the easements that comprise this alternate route are restricted to overhead facilities. Thus, attempts would have to be made to negotiate every easement to allow for installation and maintenance of an underground cable. This could be a very time-consuming and costly process.

The second alternative route deviates from the proposed route at the east side of the Seaford-Oyster Bay Expressway (State Route 135) at Central Avenue and travels east on Central Avenue past residential homes, turns north on Round Swamp Road until it merges into Winding Road.

There is a golf course on both sides of Round Swamp Road. This route would require that roads be closed and traffic be re-routed during the entire construction period. It would also prevent access to private homes throughout the construction period. Lastly, underground facilities are in place that would complicate construction considerably and increase the cost thereof.

The third alternative route deviates from the proposed route at the east side of the Seaford-Oyster Bay Expressway at the point where the LIRR ROW intersects it and travels east along the LIRR ROW to Melville Road. It then turns northeast on Melville Road and continues to Broad Hollow Road (State Route 110). This alternative route was not chosen because it is within an active LIRR main line ROW which contains LIRR speed and signal cables and associated equipment, as well as a new LIPA 69 kV overhead transmission line. In addition, Melville Road is a heavily traveled two to four lane thoroughfare lined with residential homes that leads to the busy Broad Hollow Road business corridor. Construction of the Eastern Connector would adversely affect traffic flow and businesses in this area. Lastly, natural gas, telecommunications, water, and drainage facilities are also located underground along Melville Road throughout its entire length, which would make it very difficult, if not impossible, to install the Eastern Connector here.

Q. Were any route alternatives considered for the Western Connector?

A. Yes. One alternative route was selected for the Western Connector. It is described in Exhibit 3 of the Application and depicted on Figure 3-1.

Q. Describe the alternative route for the Western Connector and why it was not chosen as the preferred route.

A. The alternate route for the Western Connector deviates from the preferred route at the entrance to the Nassau County Eisenhower Park (the "Park"), where it follows a sixty-foot wide LIRR ROW. It then turns north and follows the Park access road, continues east past the Park golf course and on to Salisbury Park Drive, where it continues east until it merges into the LIRR

ROW west of the Wantagh State Parkway. This alternate route would impact private citizens to a greater degree than the preferred route because there are approximately seventy (70) private homes along Salisbury Park Drive which would be directly across from the Western Connector along this alternate route and whose access to their homes would be adversely affected. The new cable would have to be installed in the paved roadway closer to private homes than the proposed route in order to maintain safe clearance to a gas transmission main on the south side of Salisbury Park Drive. In addition, there are other underground facilities in the roadway of Salisbury Park Drive that further complicate construction by not only adding more time to the construction schedule, but also by impeding traffic and hindering access to private homes for an extended period of time.

Q. Are there any benefits from the alternative routes?

A. Each alternative route is a bit shorter in length than the proposed route. This arguably would lower the cost of materials. However, the adverse consequences of the alternate routes considered in this Application significantly outweigh any possible benefit of reduced material costs.

Q. What alternate technology and methods did LIPA examine for the proposed Project?

A. The alternate technology and methods examined were overhead transmission; an alternative design technology; an alternate transmission line technology; and alternate transmission voltages. The analysis is described in Exhibit 3.

Q. Please describe each alternative.

A. Overhead transmission lines are the traditional method of expanding transmission capacity so long as there is adequate land space. Although electrical capacity in existing transmission corridors can be increased by upgrading and overbuilding, most of the corridor that connects the Newbridge Substation to the EGC Substation, and the Newbridge Substation to Ruland Road

Substation is already at or near electrical capacity. Thus, new pole lines would have to be installed. However, the shortage of physical space within the corridor and the very high price of land makes new overhead transmission lines unrealistic. Further, LIPA policy is to underground all 345 kV lines.

Turning to alternative design technology, two (2) options were looked at: (i) Alternative current ("AC") technology and (ii) High voltage direct current or operating voltage technology ("HVDC"). HVDC technology is appropriate when utility systems are connected over long distances, where control of power is required, when it is critical to control electrical losses, or where there is a difference in operating frequency between power grids. In the case of NeptuneRTS, HVDC was implemented due to the long distance of the transmission line (approximately sixty (60) miles) and the level of circuit losses. When NeptuneRTS terminates at Newbridge, however, it will already be converted to 345 kV AC and will already have electrical characteristics that are compatible with the LIPA system. Lastly, the Eastern Connector and the Western Connector combined, are no more than twelve (12) miles in length. Thus, AC was chosen as the preferred technology and not HVDC technology.

With regard to alternative transmission line technology, LIPA reviewed two (2) alternate underground transmission line technologies: (i) solid dielectric conductor cable and (ii) dielectric fluid filled cable. Solid dielectric technology is more appropriate because a dielectric fluid filled cable requires a pipe-type construction with dielectric fluid pumping stations. This is similar to what is currently in place between the Newbridge and EGC Substations. Besides the complexity of the engineering that is needed, use of dielectric fluid to fill the pipe and/or insulate/cool the cable carries environmental risks in the event the cable leaks. Since solid dielectric cables do not utilize any type of fluid and are capable of operating at higher temperatures, they are more desirable.

Lastly, alternate transmission voltages are not really an option given the present state of the system on Long Island, and the future plans for the system. LIPA's long range transmission plans call for the installation of 345 kV circuits on the ROWs between the EGC and Ruland Road Substations. These ROWs serve as the backbone of the LIPA bulk transmission system by providing a critical and relatively unobstructed path for the installation and maintenance of transmission circuits that can satisfy power transfer needs. Given the limited space remaining in these ROWs, cables designed to operate at 345 kV at a future time are most appropriate for the Project. The incremental cost of building the lines for 345 kV operation instead of 138 kV operation is small compared to the cost of replacing 138 kV cables with 345 kV cables at some future date. However, operation at 138 kV is more appropriate for the Project for the following reasons:

- LIPA's bulk transmission system consists of facilities that operate at 138 kV, with the exception of LIPA's two (2) three 345 kV cables, the Cross Sound Cable ("CSC"), and HVDC interconnections. Although several of LIPA's facilities are constructed at 345 kV, they too operate at only 138 kV.
- The extra capability provided by 345 kV operation is not projected to be needed until sometime in the 2015 to 2020 time frame.
- Operating these lines at 345 kV at this time would require investment in several additional 138 kV to 345 kV transformers and would require extensive reconfiguration of the EGC Substation. This would substantially increase the cost of the Project and potentially lead to delays of the Project.

Thus, 138 kV is the most appropriate voltage for operating the Connectors in the near term. In the future, subject to approvals by the NYISO, these cables can be upgraded to operate at the

higher voltage levels and thus increase their transfer capability, all with only the addition of new 345 kV terminals and substation reconfiguration.

IV. NEED FOR THE PROJECT AND RELIABILITY CONCERNS

Q. Is there a need for the Project?

A. Yes. As discussed in the Section D of the Application and Exhibit E-4, "Engineering Justification," the Eastern and Western Connectors are being constructed to enable the full receipt and delivery of capacity and energy from the Neptune RTS,[1] which was selected and approved by LIPA as part of its 2004 Energy Plan. LIPA will be able to significantly diversify its resources by providing a direct connection to the PJM Interconnection, L.L.C. (PJM) Regional Transmission Organization (RTO) as well as provide access to cheaper energy and capacity from New Jersey, Pennsylvania and other mid-Atlantic states through the NeptuneRTS. The NeptuneRTS, which starts in Sayreville, New Jersey, goes under the Atlantic Ocean, and interconnects with LIPA's electric grid at the Newbridge Substation in Levittown, will allow LIPA to import up to 660 Megawatts (MW) of electricity into Long Island. Without the Project's Western and Eastern Connectors, capacity from the NeptuneRTS could be constrained, or "bottled" at the Newbridge Substation terminus, thus reducing the benefits of the NeptuneRTS to Long Island. Together, NeptuneRTS and the Project will enable LIPA to diversify its power supplies, thereby enhancing system reliability in LIPA's electric system and providing an emergency pathway for power in critical situations. Exhibit E-4 describes the razor thin load capacity profiles that LIPA has experienced each summer, and the need for additional access to

[1] The New York State Public Service Commission certified Neptune RTS's Article VII filing on January 23, 2004; Case 02-T-0036.

capacity reserves. The Project is critical to help LIPA continue to meet anticipated demand in the summer of 2007 and beyond.

The Project will ensure that the additional power can be delivered to Long Island, and thereby, counted toward the NYISO's capacity requirements. These new transmission facilities will also help support delivery of power from other resources to western Nassau County and to the load center in Suffolk County. In addition to providing full deliverability of the NeptuneRTS capacity to Long Island loads, the Project will also enable the delivery of associated energy. As discussed in Exhibit E-4, transmission studies have indicated that without any transmission reinforcements, power from the NeptuneRTS project and other Long Island resources would be restricted from delivery to Long Island loads. The addition of the Project addresses and eliminates such potential delivery restrictions.

Q. What restrictions limit the delivery of power?

A. As discussed in Exhibit E-4, transmission studies have indicated that without any transmission reinforcements, there would be overloads of up to 20 and 22 percent above the long-term emergency dynamic ratings of the existing Newbridge Road to Ruland Road and Newbridge to East Garden City 138 kV transmission lines, respectively, when delivering the power from the NeptuneRTS™.

Q. Do the Western and Eastern Connectors eliminate the overloads?

A. Yes, as explained in Section E-4.2.2, system studies that have been conducted have shown that the addition of the Western and Eastern Connectors will eliminate the overloads and allow for the delivery of power from the NeptuneRTS™. The studies conducted include the NeptuneRTS System Reliability Impact Study (SRIS) and, more recently, the KeySpan study for LIPA in the "LIPA Transmission System Analysis (Transmission System Analysis) with

NeptuneRTS Interconnection" which are included as Attachment E-4-1 and Attachment E-4-2 respectively.

V. LOCAL ORDINANCES

Q. Please identify the local jurisdictions along the preferred route of Project.

A. The Western Connector is contained within the County of Nassau ("Nassau County") and the Town of Hempstead ("Hempstead"). Within Hempstead, the Western Connector passes through the Hamlets of East Garden City and East Meadow.

The Eastern Connector travels through Nassau County and into the County of Suffolk ("Suffolk County"). It passes through Hempstead, the Town of Oyster Bay ("TOB"), and the Town of Huntington ("Huntington").

Within Hempstead, the Eastern Connector passes through the Hamlet of Levittown. Within the TOB, the Eastern Connector passes through the Hamlets of Plainedge, Bethpage, and Old Bethpage. Lastly, within the Town of Huntington, the Eastern Connector passes through the Hamlet of Melville.

Q. Were the laws of each of these jurisdictions examined?

Yes. Exhibit 7 contains a complete description of the compliance of the Project with applicable local requirements. The substantive provisions for each jurisdiction were examined. The Hamlets are not jurisdictions with codified laws. The respective Town and County Codes are the only local laws, ordinances and regulations that, in the absence of Public Service Law ("PSL") section 126(f), would apply to the construction and operation of the Project. I am advised by counsel that, due to the preemptive effect of PSL section 126(f), all procedural requirements do not apply.

Q. Please list the local laws that you examined.

There are numerous local laws governing land use, development and construction, and a variety of other activities. The following were examined:

The Nassau County Charter / County Government Law of Nassau County;

The Nassau County Administrative Code;

The Hempstead Code;

The Town of Oyster Bay Code;

The Suffolk County Code;

The Suffolk County Department of Public Works Permits / Traffic Requirements;

The Suffolk County Sanitary Code; and

The Huntington Code.

Q. Will the Project comply with these laws?

Yes. The Project will comply with the numerous local laws applicable to the proposed construction and operation activities.

Q. Is LIPA seeking a waiver of any local laws?

No. The review which was conducted of local laws identified no substantive provisions with which the Project will not comply. Accordingly, LIPA is not seeking any waivers of local laws.

VI. ENVIRONMENTAL IMPACT

Q. Were studies performed to determine the impact of the Project on the environment?

A. Yes. The studies evaluated the existing conditions and potential impacts in the following areas:

Land Use

Visual Resources

Cultural/Archaeological Resources

Terrestrial/Wetlands

Topography and Soils

Water Resources

Traffic and Transportation

Noise

Transmission Line Electric and Magnetic Fields

Cumulative Effects

Q. What methodologies were employed to determine existing land use conditions for the proposed route?

A. A qualitative assessment was conducted to evaluate the compatibility of the Project with existing and future land uses, and local and state land-use plans. As described in Exhibit 4, Section 4.3, the existing land use conditions and land use resources were investigated through examination of aerial photographs, land use maps, and field surveys. Direct communication with municipal planning departments was also conducted in order to validate current land use conditions, policies, and regulations as they may affect the Project.

Q. Will the Project have any adverse effects on land use patterns?

A. The Project will not have any long term impacts on land use patterns. Long-term impacts to land use as a result of operation of the transmission cables have been avoided by placement of the cables underground and by moving the cable routes away from existing developed areas to the extent practicable. Temporary land use disturbances may occur during installation of the cables; however, these temporary disturbances will not have a significant adverse impact on existing land uses. The installation of new equipment and equipment upgrades at the existing substations will not result in any significant adverse land use impacts.

To the extent practicable, the cable has been routed within existing road, railroad and other utility corridor ROWs in order to minimize impacts. Utilizing ROWs for the placement of the cable avoids many potential impacts to existing and planned land uses. These locations have been previously disturbed thereby minimizing the potential impacts of the installation of the transmission cable. There will be no alteration of the footprint of any of the three substations caused by the Project.

Q. What methodologies were employed to determine visual resources impacts along the proposed route?

A. As described in Exhibit 4, Section 4.4, a qualitative assessment was conducted to evaluate the potential for impacts to visual resources along the proposed route.

Q. What types of visual resources adjacent to the proposed route were identified?

A. Portions of the Project are located in residential, commercial, wooded, and recreational areas including Eisenhower County Park, Bethpage Page State Park, and the Nassau Community College and the Farmingdale State University campuses.

Q. Will the Project have any adverse effects on visual resources?

The Project will not have any significant impacts on visual resources. With the exception of minor improvements to the substations and the placement of manholes at grade approximately every 1,500 feet along the route, there will be no permanent visual changes along the route. Temporary visual impacts will occur during installation of the cable due to the presence of construction equipment and as a result of vegetation and tree clearing in existing ROWs. All disturbed areas of vegetation within the ROW of the cable route will be restored pursuant to an Environment Management and Construction Plan (EM&CP) to be approved by the Commission.

Q. What methodologies were employed to determine cultural resources impacts along the proposed route?

A. The files of the OPRHP were reviewed in order to identify known cultural resources in the vicinity of the proposed transmission line. All archaeological sites within a 2-mile radius of the Project area and properties eligible for listing in the NRHP within a 1-mile radius of the Project area were identified and recorded.

In addition, an archaeological reconnaissance has been conducted throughout the proposed route in order to identify immediately observable cultural features, collect information on ground disturbance and formulate the archaeological sensitivity assessment of the proposed ROW. Historical and archeological resource information collected as part of this Project is presented in Exhibit 4, Section 4.5 to the Application.

Q. What types of cultural resources adjacent to the proposed route were identified?

A. The proposed Eastern Connector route follows the former LIRR Central Division ROW for approximately 3.5 miles, and corresponds to the former railroad bed between the two overhead electrical transmission lines.

The route also follows the eastern edge of the Seaford Oyster Bay Expressway's ROW for approximately 1.1 mile. This portion of the route sustained prior surface disturbance. It has low potential for containing archaeological resources with an exception of an approximately 200-meter (600-foot) section.

The remaining 4.2 miles of the Eastern Connector do not manifest significant ground alteration and have the potential to contain cultural resources. It is recommended that a Phase I cultural resource investigation be performed for this portion of the route prior to construction. A consultation has been initiated with OPRHP and they have concurred with this recommendation.

The Phase 1 investigation and any subsequent activities will be completed in the spring of 2005 prior to final Project design.

The entire route of the proposed Westward Expansion is contained within the bed of former LIRR Central Division ROW. It has low potential for intact archaeological resources. The disturbances associated with the construction and subsequent removal of the LIRR precludes the possibility of the areas of potential exposure to contain intact cultural resources. No further investigation or mitigation is required for this portion of the route. A consultation has been initiated with OPRHP and they have concurred with this recommendation.

Q. Will the Project have any adverse effects on cultural resources?

A. No. Most of the route is in previously disturbed areas that have no cultural significance. A Phase I cultural resource evaluation will be completed for those portions of the route located in areas where there is a potential for a resource to be present prior to construction. Appropriate mitigation will be made to avoid impacts.

Q. What types of terrestrial resources were identified along the Western Connector cable route?

A. Exhibit 4.6 describes the methodologies employed to determine potential terrestrial wetland impacts. The existing substations where equipment installations and upgrades will occur are entirely comprised of fill material and do not contain any plant communities, wetlands, wildlife habitats, or threatened and endangered species.

Approximately 900 feet, or 4.2%, of the Western Connector cable route crosses, previously cleared and maintained, upland forested vegetation that has been allowed to grow on existing ROWs. Based on a cleared ROW width of 30 feet, construction of the transmission cable will affect approximately 0.6-acre of forested vegetation. Vegetation clearing will be accomplished using mechanical means (i.e., hand-held chainsaws and brush hogs). None of the forested areas

to be cleared are considered significant or unique habitats and the 0.6-acre area affected is considered insignificant on both a local and regional level.

Disturbance to nonforested plant communities will be limited to temporary impacts associated with equipment access and trenching activities. Over 95% of the plant communities along the cable route consist of previously disturbed and/or maintained early successional, nonforested communities, including 14% permanently maintained as mowed lawn.

Q. Will the Project have any adverse effects on these resources?

A. No significant impacts to vegetation will be caused by the construction and operation of the Western Connector. All disturbed areas of vegetation within the ROW of the cable route will be restored according to a Project-specific Revegetation Plan as part of the approved EM&CP.

Q. What types of terrestrial resources were identified along the Eastern Connector cable route?

A. Approximately 9,442 feet, or 19.6%, of the Eastern Connector cable route crosses upland forested communities that have been allowed to grow (see above) on existing ROWs, are adjacent to existing ROWs followed by the route, or occur along portions of the route that do not follow existing ROW. Clearing of forested vegetation along the proposed cable route has been avoided to the maximum extent practicable by routing the cable within existing cleared ROWs and disturbed areas, and by implementing directional drill construction techniques at various locations.

Over 77% of the plant communities along the cable route consist of previously disturbed and/or maintained early successional, non-forested communities, including 22% permanently maintained as mowed lawn. The temporary alteration of these areas will have a temporary and minor impact on their wildlife value because the habitat would be returned to previous conditions following construction.

Construction of the proposed cable will require the removal of approximately 5.9 acres of forested habitat and replacement with maintained open habitat. The clearing of forested vegetation will predominantly occur along the edge of existing road corridors and will not result in the clearing of new ROW. The slight expansions of these cleared corridors will have negligible effects on wildlife diversity or concentrations utilizing the areas.

Q. Will the Project have any significant adverse effects on these resources?

A. No. Clearing of forested vegetation will be required primarily in two sections of the route: along the east side of Seaford-Oyster Bay Expressway where the successional northern hardwood community extends nearly to the edge of pavement; and along the east side of Winding Road where the chestnut oak community extends nearly to the edge of pavement. Based on a cleared ROW width of 30 feet through approximately 6,970 feet of these communities, an estimated 4.8 acres of forested vegetation will be cleared. Vegetation clearing will be accomplished using mechanical means (i.e., hand-held chainsaws and brush hogs). None of the forested areas to be cleared are considered significant or unique habitats and the 4.8-acre area affected is considered insignificant on both a local and regional level.

Disturbance to nonforested plant communities will be limited to temporary impacts associated with equipment access and trenching activities. All disturbed areas of vegetation within the ROW of the cable route will be restored pursuant to the EM&CP after construction.

Q. What type of wildlife resources were identified along the proposed route?

A. Few wildlife species use the proposed ROW due to a lack of suitable habitat and the surrounding urban area.

Q. Will the Project have any adverse effects on these resources?

A. Some birds and small mammals present along the route or in the immediate vicinity may be temporarily affected during construction activities. However, wildlife use of the Project area

would be expected to return to "normal" or pre-Project conditions following the completion of construction and restoration of the ROW.

Q. What types of protected species resources were identified along the proposed route?

A. Based on a literature review it was determined that a number of protected species have the potential to be present along the proposed route. As described in Exhibit 4.6, Section 4.6.4, field reconnaissance indicated suitable habitat does not exist in the Project area for the following identified state-listed species: upland sandpiper, peregrine falcon, soapwort gentian, swamp sunflower, and slender crabgrass.

The open field habitat along the portion of the route that traverses Eisenhower County Golf Course is periodically mowed and therefore unlikely to provide suitable habitat for the successful establishment of most of the state-listed plant species that were identified as occurring in a local remnant of the Hempstead Plains grassland. Sandplain gerardia occurs in grassland habitats that are subject to periodic disturbance such as mowing or grazing. However, the proposed ROW through the golf course does not provide suitable habitat for this species due to the dominance of European pasture grasses and thick thatch.[2]

Potentially suitable habitat to support the state threatened woodland agrimony occurs in the section of the Eastern Connector cable route extending from just south of Barry Lane to the west side of Winding Road. However, woodland agrimony was not identified during field investigations completed along the cable route completed in October 2004 and the species was last observed in the vicinity of the Project area in 1924. In addition, the proposed transmission cable will be directionally drilled through this area to avoid the permanent clearing of forested vegetation. No suitable habitat was identified in the Project area for the state-listed hyssop-skullcap, southern yellow flax, and Collin's sedge.

[2] Jordan 2004.

Q. Will the Project have any adverse effects on these resources?

A. For the reasons described above the Project will not have any adverse effects on any protected species.

Q. What types of wetlands and coastal resources were identified along the proposed route?

A. No wetlands exist on or immediately adjacent to the proposed cable route.

Q. What methodologies were employed to determine topography soils and water resource; impacts along the proposed route?

A. As explained in Exhibits 4.7 and 4.8, the information was obtained through literature review, online documentation, agency consultations, site surveys, and a review of existing data sources.

Q. Will the Project have any adverse effects on geologic resources or any aquifers?

A. Construction of the Project is expected to have negligible impacts on the existing topography, geologic resources and aquifers within the Project area. The Project avoids high points, ridge lines and steep slopes as it runs along the proposed route. Installation of the cable will involve utilization of directional drilling methods through a relatively small 10-inch diameter borehole and excavation of a trench approximately 42 inches deep that will be restored to original site conditions with the same soil once the cable is in place. There will be no permanent impact on local topography.

No long-term impacts on geologic features in the Project area will occur as a result of the Project's construction. Significant grading and filling is not necessary for installation of the cable. Conventional cut and cover techniques will be utilized along the right-of-way at a depth of 42 inches. Construction activities at these shallow depths will have no effect on the underlying geological resources including aquifers. Directional drilling will be used at selected locations to avoid crossing roadways and environmentally sensitive features. Because the Project area traverses a designated sole-source aquifer, special pollution-prevention measures

will be taken during construction to minimize the potential for a spill of hazardous substances and the release of drilling fluids. Groundwater is not expected to be encountered during construction since the cable trench depth will extend a maximum of 5 feet below the surface, and the depth to groundwater in the Project area has been identified as 50 to 60 feet.

During the horizontal directional drilling activities, the potential exists for previously unidentified fractures in the subsurface geology to be encountered that can cause the release of drilling mud containing benign bentonite into the groundwater (referred to as a "frac-out"). Soil borings along the route indicate that geologic conditions are suitable for a successful direction drilling operation; however, there is a potential that minor discontinuities within the underlying rock strata could result in the inadvertent release of drilling fluids. Bentonite containing drilling mud is comprised of natural clay materials that are inert and non-toxic in order to minimize impacts should a release of drilling muds to the groundwater occur.

Operation of the cable system will not impact groundwater, since the cable system does not contain any fluids for cooling or storage of the system. In addition, no significant surface area structures will be constructed that would alter the natural recharge area for groundwater.

Q. What methodologies were employed to determine potential traffic and transportation impacts along the proposed route?

A. As described in Exhibits 4.9 and E-6, site surveys were performed and construction techniques were evaluated to determine potential traffic and transportation impacts.

Q. What types of potential traffic and transportation impacts adjacent to the proposed route were identified?

A. The proposed route crosses approximately 35 paved areas. Construction activities may close travel lanes temporarily, but installation will ensure that there is always one travel lane open for traffic to flow.

Q. Will the Project have any adverse effects on traffic and transportation?

A. Impacts on community traffic flows are not expected to be significant. Horizontal directional drilling techniques will be used at major intersections and highway crossings to reduce impacts. Every effort will be made to minimize the number of trips generated by the construction crews for ROW trenching, construction and land restoration, and all construction activities will be in accordance with a Commission-approved EM&CP and conform to applicable local traffic and transportation standards. At each of the intersections where construction will take place, construction vehicles will access the ROWs from the nearest cross street. Specific mitigation measures will be developed by construction contractors and included in the EM&CP.

Q. What methodologies were employed to determine noise impacts along the proposed route?

A. As described in Exhibit 4.10, site surveys were performed and construction techniques were evaluated to determine potential noise impacts due to construction activities. In order to evaluate the noise impact of the two additional transformers at the Newbridge Substation noise measurements were taken along the property line of the facility while it was operating under load conditions. To identify the noise contribution from a single 345 kV transformer, E&E measured the octave band noise emissions at a distance of one meter from a 345 kV transformer in operation at the Shore Road Substation. The additional noise contribution of the two transformers at the property line was predicted using a stationary noise model, version 2 of the Power Acoustics, Inc. model SPM9613. The existing sound level was then combined with the sound levels predicted by the model for the two transformers. It was determined that the addition of the two new transformers will result in essentially no increase in the existing noise level and therefore, there would be no noise impact.

Q. What types of potential noise impacts were identified during construction?

A. Construction activities along the cable route will include HDD and cable trenching and backfilling. The installation of the cable will cause temporary increases in the ambient sound environment in the immediate vicinity of the construction sites. The installation of two additional 345 kV transformers at the Newbridge Road Substation has the potential to cause an increase in operational noise levels at that facility.

Q. Will the Project have any adverse effects on these resources?

A. Noise impacts due to construction activities will be temporary and not significant. In order to minimize noise impacts, construction activities will be conducted only between the hours of 7:00 a.m. and 6:00 p.m. on weekdays. In addition, engine covers and mufflers will be employed to reduce noise emissions from mobile equipment. Work in the proximity of any individual general location along the proposed route will likely last no more than approximately one week, as construction activities move along the corridor. Therefore, no single receptor will be exposed to significant noise levels for an extended period. Specific noise mitigation measures will be incorporated into the EM&CP, and all activities will be in compliance with applicable town noise codes.

Noise studies performed at the Newbridge Road Substation concluded that the two new transformers will result in essentially no increase in the existing noise level.

Q. What methodologies were employed to determine Electric and Magnetic Field ("EMF") impacts along the proposed route?

A. An EMF study was undertaken by E/PRO Consulting LLC. That study includes a computer simulation of the EMF from the proposed cable which was performed to determine EMF levels that will result from the Project. Since the proposed route of the cable is in an existing ROW, the existing EMF profile of the ROW was also factored into the computer simulation. The complete

study and results are presented in Appendix C of the Application and in the testimony of LIPA witnesses Corrado and Ordum.

Q. Will the EMF levels resulting from the Project exceed Public Service Commission guidelines?

A. No. The results of the EMF computer simulation of the new underground cable and existing electric lines demonstrates that both electric and magnetic field levels at the edge of the ROW are well below the maximum levels set out by the New York State Public Service Commission (1.6 kV per meter for electric fields and 200 milligauss for magnetic fields). The calculated magnetic fields were well below the 200 milligauss standard at all study locations and distances from the cable (30 feet, 75 feet and 150 feet respectively). Electric fields are essentially zero due to the line configuration.

Q. In conclusion, does the proposed route and other mitigation measures described in the Application minimize the potential environmental impacts of the Project to the extent practicable?

A. Yes. there will be minor temporary noise, visual, traffic, land use and soil impacts associated with the installation of the cable. These impacts have been minimized by the selection of the route and will be further mitigated through sound construction practices that will be developed as part of the EM&CP process.

The only potential for a longer term impact will be from the clearing of forested vegetation along the east side of Seaford-Oyster Bay Expressway; and along the east side of Winding Road where the chestnut oak community extends nearly to the edge of the pavement. None of the forested areas to be cleared are considered significant or unique habitats and the 4.8-acre area affected is considered insignificant on both a local and regional level. All disturbed areas of vegetation within the right-of-way of the cable route will be restored according to a Project-specific

Revegetation Plan that will be incorporated into the EM&CP. In sum, the Project is designed to avoid environmental impacts to the greatest extent practicable and minimize those impacts that cannot be avoided.

Q. Does this conclude the Panel's testimony?

A. Yes.

Testimony of J. F. Ordon and Christopher Corrado

STATE OF NEW YORK
PUBLIC SERVICE COMMMISSION

Application of Long Island Power Authority for a Certificate of Environmental Compatibility and Public Need for the Construction and Operation of The Newbridge Road Connector Project pursuant to Article VII of the Public Service Law

Case _____

TESTIMONY OF THOMAS J. F. ORDON AND CHRISTOPHER CORRADO

ON BEHALF OF THE LONG ISLAND POWER AUTHORITY

Q. Mr. Ordon, please state your name, title, business address, and summarize your educational and professional backgrounds.

A. My name is Thomas J. F. Ordon. I am currently employed as a Senior Transmission Engineer by E-PRO Engineering and Environmental Consulting, LLC ("E-PRO"), 225 Greenfield Parkway, Liverpool, New York 13088. I received my Bachelor of Electrical Engineering degree from Union College in Schenectady, New York in 1958. I am a Life Senior member of the Institute of Electrical and Electronic Engineers and a Registered Professional Engineer in New York.

I joined Niagara Mohawk Power Corporation in 1958 and was responsible for various phases of overhead transmission line design, including project planning, licensing, coordination and management. I was directly involved in the company's development of 230kV and 345kV transmission lines. I testified in several Article VII proceedings before the New York State Public Service Commission (PSC) on matters of siting, design, cost comparisons and construction schedules. I also negotiated with PSC staff, intervenors and other parties in resolving conflicts and developing solutions in matters of siting and construction. I retired from Niagara Mohawk in 1995.

I was a member of the Empire State Electric Energy Research Corporation's Electric & Magnetic Fields Task Force, which provided the focal point of utility interaction with the PSC concerning potential health risks from power line electric and magnetic fields. I participated with representatives of other New York State utilities in the PSC Proceeding on these issues, which led to its Statement of Interim Policy on Magnetic Fields of Major Electric Transmission Facilities, first adopted in Cases 26529 and 26559 on September 11, 1990.

Q. Are you familiar with the Newbridge Road Connectors Project?

A. Yes.

Q. Mr. Ordon, did you prepare any studies to quantify electric and magnetic fields associated with the proposed and existing lines?

A. Yes. I prepared a report entitled, *Measured and Calculated Electrical Effects at Various Locations, Newbridge Road Connector Project.* The report, which is attached as Appendix C, summarizes the pre-construction or existing magnetic fields and the future post-construction magnetic fields at eleven (11) locations along the route of the new 345kV circuit. Also addressed are the electric fields, radio interference (RI), and television (TV) interference levels that will exist after the work is completed.

Q. Mr. Corrado, please state your name, title, business address and summarize your educational and professional background.

A. My name is Christopher Corrado. I am currently a Manager, Air Quality Compliance, at KeySpan Corporation, 175 East Old Country Road, Hicksville New York 11801. I have a Bachelor of Science degree in Biology from St. John's University. I have been in the environmental field since 1986, specializing in environmental hygiene issues including asbestos and lead abatement, herbicide usage, worker protection from hazardous exposures and EMF. I have been with KeySpan or predecessor companies since 1990. While at KeySpan I have also managed air and water compliance programs and acted as licensing manager on four (4) power plant development projects and assisted in numerous transmission line and substation projects. I have previously testified before the New York State Board on Electric Generation Siting and the Environment on a number of environmental issues. In regard to EMF, I have been following or managing the power line frequency electric and magnetic field issues since the early 1990s and am a member of the Edison Electric Institute's EMF Task Force.

Q. Are you familiar with the Newbridge Road Connector Project?

A. Yes. I was briefed early on by the KeySpan team of engineers involved in the design of the Project and have studied and reviewed the report prepared by Tom Ordon of E-PRO.

Q. Are there any electric or magnetic field standards that must be met for a line of this type?

A. Yes, the PSC's Interim Policy has standards that apply at the edge of the right-of-way. The PSC's standard uses the term "right-of-way" to refer to a right-of-way width one-hundred fifty feet (150') wide for a 345 kV transmission circuit, with the transmission line centered in the corridor. The standard specifies a maximum level for electric fields of 1.6 kilovolts per meter, and a maximum level for magnetic fields of two hundred milligauss (200 mG).

Q. Please describe the proposed facility.

A. The proposed underground transmission line consists of three (3) single conductor two thousand (2000) mm^2 copper conductor cables with cross linked polyethylene insulation and outer aluminum corrugated sheath with polyethylene jacket, whereby the aluminum sheath is grounded to the earth.

Q. Please describe the analysis that was performed to address the EMF requirements of the PSC along the proposed cable route.

A. As part of the engineering effort, an EMF Study was performed along the entire thirteen and one-tenth (13.1) mile proposed cable route from the East Garden City Substation to the Ruland Road Substation. The study consisted of measuring existing magnetic field levels at eleven (11) specific locations along the route that define varying physical conditions, developing a mathematical model to simulate the existing system along the proposed cable route, adding the installation of the new 345kV underground cable circuit to the model, and calculating the

expected levels of magnetic fields during cable operation based upon the developed mathematical model.

The magnetic field levels were calculated at two (2) ampacity rating levels that the new circuit is capable of sustaining: summer and winter continuous thermal ratings. To develop a conservative analysis, the ratings utilized were based upon concurrent maximum summer and winter continuous ratings for existing transmission facilities and for the proposed cable along the preferred route. This scenario of operation is highly unlikely to occur. The report, *Measured and Calculated Electrical Effects at Various Locations, Newbridge Road Connector Project*, attached as Appendix C to this filing, details the methodology, measured values, calculated values, analysis, and conclusions.

Electric fields, RI, and TV interference are also addressed.

Q. What were the results of your analysis?

A. The study reveals that the calculated or expected magnetic fields for the Newbridge Road Connector Project, seventy five feet (75') on either side of the centerline of the 345kV cable are less than the two hundred milligauss (200 mG) maximum field magnetic level permitted at the edge of the transmission right-of-way as defined in the PSC Interim Policy Statement. The actual right-of-way is approximately sixty feet (60') wide. The analysis shows that at the edge of the actual right-of-way (thirty feet (30') on either side of the center of the transmission line) the expected magnetic fields are below two hundred milligauss (200 mG).

The electric field levels will meet the PSC standard. In fact, the study reveals that negligible electric field levels are created by the cable. The cable's metallic sheath and the fact that it is buried both play a role in establishing the fact that the cable generates an essentially zero (0) electric field.

Finally, no additional radio noise, telecommunication or TV interference will be produced as a result of the Project.

Q. Was the Project designed with a view to minimizing electric and magnetic fields?

Yes, the transmission cables in the Project are designed and engineered to minimize electric and magnetic fields. The cables are shielded and placed underground, which effectively blocks the electric fields. The cables are also arranged in a triangular configuration to maximize cancellation of the magnetic fields, thereby reducing magnetic fields to the greatest extent possible.

Q. Does the proposed Project meet PSC standards?

A. Yes. Q. Please summarize your conclusions.

A. The electric field emanating from the new circuit will be negligible due to the cable's physical construction and placement. The magnetic fields are calculated to be well below the two hundred milligauss (200 mG) standard.

In summary, results of the EMF study indicate that:

- The electric field generated by the new cable circuit is considered essentially zero (0), leaving the existing levels of electric fields along the cable route unchanged at any location along the circuit right-of-way from the East Garden City to Newbridge Road to Ruland Road Substations.
- The magnetic field calculated at the edge of the ROW on either side of the proposed cable route, as defined by the PSC (*i.e.* seventy five feet (75') from the centerline of the cable route), is considerably less than the prescribed limit of two hundred milligauss (200 mG) at all eleven (11) locations along the entire cable route.

- The magnetic field at a thirty foot (30') distance from the proposed cable route simulating the sixty foot (60') foot Long Island Railroad right-of-way width on which most of the cable route will reside (and to which the standard does not apply), also shows calculated values less than the two hundred milligauss (200 mG) level.

Q. Does that conclude your joint testimony?

A. Yes, it does.

Curricula Vitae

GREGORY T. NETTI

Project Manager/ Environmental Scientist

EDUCATION

B.A., Environmental Planning/Resource Management, State University of New York College at Plattsburgh

A.A.S., Natural Resource Conservation/Environmental Law, Finger Lakes Community College

Mr. Netti has eight years' experience managing environmental investigations and leading natural resource surveys (terrestrial ecology, wetlands, topography, soils, water resources), and socioeconomic, land use and traffic/transportation evaluations in support of EISs, EAs, and ERs for large utility projects, industrial and commercial facilities, transportation/infrastructure development, and urban/residential development.

Neptune RTS, New York and New Jersey. Mr. Netti managed the New Jersey permitting for installation of submarine electric cable between New Jersey and New York State for the Neptune project. He led E & E's detailed alternatives routing analysis, which included field evaluations for a potential underground cable route extending from Sayreville, New Jersey, to Manhattan; and led the wetland delineation surveys.

Electric Transmission Line, Bergen, New York. For a 6-mile, 34.5-kV overhead transmission line, he completed wetland delineations, surveys for T/E species, and a detailed visual resource impact analysis under SEQR. He consulted with the National Park Service to regarding potential project impacts on an adjacent national natural landmark and included the results in the EAR. In addition, he prepared the joint NYSDEC/USACE stream and wetland permit application for the Town of Bergen

LNG Terminal Siting Study, Northeastern US. Mr. Netti assisted in E & E's development and implementation of screening criteria to evaluate potential LNG terminal locations. He prepared key components of fatal flaw analysis reports as part of the site evaluation process.

Line PY-10 Pipeline, Allegany County, New York. For National Fuel Gas Distribution Corporation (NFG), Mr. Netti was E & E's project manager for the 33-mile pipeline replacement and abandonment project. He completed wetland delineations, stream surveys, and T/E species habitat surveys for all project components. He prepared sections for the projects FERC application on water use and quality; vegetation and wildlife; and land use, recreation, and aesthetics. He also prepared the joint New York State Department of Environmental Conservation (NYSDEC)/USACE stream and wetland permit application.

AM-60 Pipeline Replacement, Pennsylvania. For NFG, he conducted environmental field investigations to support the 13-mile pipeline replacement project in Allegheny National Forest (ANF). The project involved wetland delineations, stream surveys, and Indiana bat surveys. For the FERC ER, he prepared the sections on water use and quality; vegetation and wildlife; and land use, recreation, and aesthetics. For the ANF project review, Mr. Netti prepared a biological assessment for 31 federally proposed, T/E, and regionally sensitive species listed as potentially occurring within the ANF project boundary. He also prepared stream and wetland permit applications for submission to the Pennsylvania Department of Environmental Protection. For the compressor station upgrade associated with the project, Mr. Netti prepared an ambient sound survey report to accompany the FERC ER.

EMPLOYMENT:

Ecology and Environment, Inc., Buffalo, New York, 1999-present
Terrestrial Environmental Specialists, Inc., Phoenix, New York, Environmental Technician, 1998-1999
Madison County Department of Environmental Health, Madison County, New York, Public Health Sanitarian, 1997-1998
Southern Cayuga, Weedsport, and Cato-Meridian School Districts, New York, Substitute Teacher, 1996-1997

THOMAS G. SIENER, CIH — Noise Specialist

EDUCATION

B.S., Biology, Purdue University

CERTIFICATIONS

Certified Industrial Hygienist, American Board of Industrial Hygiene

With 31 years' experience, Mr. Siener is an expert in the development of noise monitoring programs; conducting modeling, and providing technical guidance for the development of recommendations and engineering controls to reduce noise impacts for energy development projects and EISs. He is responsible for the evaluation and purchase of new field instrumentation and oversees the repair, maintenance, scheduling, and utilization tracking of over 1,000 pieces of E & E-owned field equipment. He has completed a variety of courses and seminars, including the application of the Federal Aviation Administration's integrated noise model INM Version 6.1 for evaluation of airport noise statistical process control.

Noise Modeling for Neptune RTS Converter Station, Manhattan, New York. Mr. Siener used the Power Acoustics SPM9613 noise model to assess the impact of a proposed HVDC power converter station for the Neptune RTS. He predicted the noise impact of multiple cooling fans, transformers, and other converter station equipment on the nearest noise sensitive receptors, as well as the effect of building walls on transmission loss and noise reflection. His final report which was presented to the NYSPSC, USACOE and NJDEP delineated the site and receptor locations, the modeling methodology, and the modeling results.

Noise Evaluation/Impact Assessment for Chautauqua Wind Project, Western New York. For Chautauqua Windpower, LLC, a subsidiary of Jasper Energy, LLC, Mr. Siener managed the noise evaluation/impact assessment task for the construction and operation of a 50-MW wind energy facility proposed for location within a 6- by 2-mile area in the Towns of Ripley and Westfield. Using WindPro2 software, he modeled the noise impact of 34 wind turbines on noise-sensitive receptors under various seasonal and wind conditions. He compared the modeling results to NYSDEC noise guidelines and the Town of Westfield's noise ordinance.

Noise Surveys for Fortistar Power Stations, Staten Island, New York. Mr. Siener led noise surveys in support of the application filed with the State of New York DEC for the construction and operation of two proposed power plants. His team followed CEQR guidelines to identify noise-sensitive receptors and measured the background noise levels at selected locations during the morning, midday, and nighttime peak hours. He performed noise modeling using the NoiseCalc model of the New York State Department of Public Service, in order to predict the impact of the power

stations on the nearest noise-sensitive receptors. He summarized the survey and modeling results in an EA supplemental report that was included as part of the permit application.

Regulatory Investigation for Hudson River PCB Cleanup, New York State. For EPA Region 2 and the USACE Kansas City District, Mr. Siener reviewed regulatory requirements and available standards of practice to develop the draft performance standards for noise, lighting, and odor that will be used to evaluate the impact of dredging activities on quality-of-life concerns for the residents living near the river.

Interim Solid Waste Management Program, New York City. In support of municipal sanitation truck rerouting proposed by the New York City Department of Sanitation, he directed the baseline noise level monitoring program to determine the noise impact of future actions on various receptor locations in Manhattan.

Red Hook Stores Redevelopment, Brooklyn, New York. In accordance with New York CEQR guidelines, Mr. Siener performed an initial noise screening for the proposed reuse of a warehouse as a supermarket. He measured existing noise levels and traffic volumes at predetermined locations and identified sensitive noise receptors that could be affected the additional truck and passenger car traffic noise.

EMPLOYMENT:

Ecology and Environment, Inc., Buffalo, New York, 1985-present
LTV (Republic) Steel Corporation, Canton, Ohio, Administrator of Health, 1985, and Environmental Engineer, 1982-1985; Buffalo, New York, Assistant Supervisor of Safety and Health, 1977-1982
E.J. Meyer Hospital, Buffalo, New York, Laboratory Technician, 1975-1976
Arcade Industries, Arcade, New York, Quality Control Supervisor, 1973-1974

PROFESSIONAL AFFILIATIONS:

American Industrial Hygiene Association
American Society of Safety Engineers
National Asbestos Council

BIBLIOGRAPHY:

Jonmaire, P.W., G.E. Hahn, and T.G. Siener, July 15-17, 1996, An Alternative to Soil for Daily Cover at Landfills, paper presented to 28th Mid-Atlantic Industrial and Hazardous Waste Conference, Buffalo, New York.

LEONID I. SHMOOKLER, RPA Archaeological Studies

EDUCATION

M.A., Anthropology, Columbia University

B.A., Anthropology, Columbia University

Certificate, Department of History, Leningrad University, Russia

CERTIFICATIONS

Registered Professional Archaeologist, Register of Professional Archaeologists

Mr. Shmookler is E & E's chief archaeologist and principal cultural resource investigator. He has comprehensive experience in the performance of cultural resource investigations, including archaeological surveys, evaluations, and mitigation; consultation with involved agencies, interested parties, and Native American groups; and evaluation of compliance with state and federal laws.

Archaeological Investigation for Neptune RTS, New York and New Jersey. For the Neptune RTS cable project, Mr. Shmookler managed the terrestrial and underwater remote-sensing surveys, and assessment of the prehistoric archaeological potential of the Continental Shelf in New York and New Jersey waters. The Phase I and II reports prepared under Mr. Shmookler for this project were presented to the NYSPSC, USACOE and NJDEP.

EAFs for Fortistar Power Stations, Staten Island, New York. Mr. Shmookler prepared EAFs for the proposed construction and operation of natural gas-fired electrical power facilities, in order to help FCI Lockport GP, Inc., (Fortistar) meet requirements of the New York SEQR. The project included cultural resource data collection, field studies, and agency consultation.

Cultural Resource Support for Chautauqua Wind Project, Western New York. Mr. Shmookler provided cultural resource support for E & E's preparation of the EIS for a 50-MW wind energy farm proposed by Chautauqua Windpower, L.L.C., a subsidiary of Jasper Energy, LLC.

Cultural Resource Leader for Astoria Power Plant, New York City. For Reliant Energy (formerly Orion Power New York), he was E & E's cultural resource task leader in support of the certification of the repowering of the newly acquired Astoria power plant, in compliance with Article X of the New York State Department of Public Service Law (siting of major electrical generating facilities). The report prepared by Mr. Shmookler's was submitted to the NYSPSC and NYSOPRHP and resulted in a "No Effect" determination.

Cultural Resource Investigations for Steuben (Thomas Corners) Gas Storage Field, Steuben County, New York. For ANR, Mr. Shmookler was E & E's principal investigator for the Phase I and II cultural resource investigations. Phase I—which included a background literature and site file review, a reconnaissance-level walkover survey, and an intensive field

survey (i.e., test cuts and circular shovel tests) of the entire project area—resulted in the identification of five archaeological sites, three of which required Phase II investigation.

Archaeological Survey for Lakehead Pipeline, Amherst, New York. As E & E's cultural resource principal investigator, Mr. Shmookler conducted archival research and agency consultation and led the Phase I archaeological survey. During the survey, he identified the remains of an early 19th-century limestone quarry that had been established/operated by three generations of a Mennonite family. Following the discovery of prehistoric remains, he conducted a Phase II evaluation of these resources.

EMPLOYMENT:

Ecology and Environment, Inc., Buffalo, New York, 1989-present
Historic Conservation and Interpretation, Inc., Newton, New Jersey, Archaeologist/Principal Investigator, 1988-1989
Louis Berger & Associates, Inc., East Orange, New Jersey, Archaeologist/Principal Investigator, 1984-1988
Columbia University, New York, New York, Archaeological Crew Chief/Crew Member, 1972-1983
Soil Systems, Inc., New York, New York, Site Cartographer, 1980
Leningrad Institute of Archaeology, Leningrad, Russia, Archaeological Crew Member, 1972

PROFESSIONAL AFFILIATIONS:

Archaeological Society of New Jersey
Eastern States Archaeological Federation
Middle Atlantic Archaeological Conference
New York Archaeological Council
New York State Archaeological Association

BIBLIOGRAPHY:

Shmookler, L.I., 1983, Masloukh Revisited: Amudian Layers of the Middle Paleolithic Site in Lebanon, master's thesis, Columbia University.
Shmookler, L.I., N.A. Aungst, R. Ostermueller, and D.R. Castle, March 1993, Cultural Resource Survey: Balancing Mission Objectives, Cost Control

and Regulatory Compliance, paper presented to ADPA 19th Environmental Symposium and Exhibition, Albuquerque, New Mexico.

Shmookler, L.I., N.A. Aungst, M.S. Rosenzweig, and R. Ostermueller, April 1995, Cultural Resources Investigation to Support Base Closure and Realignment of the Naval Construction Battalion Center, Davisville, Rhode Island, paper presented to ADPA 21st Environmental Symposium and Exhibition, San Diego, California.

Oversize Figures