APPENDIX A

PERMISSION TO INSPECT PROPERTY FORM

New York State
Department of Environmental Conservation

PERMISSION TO INSPECT PROPERTY

By signing this permission form for submission with an application for a permit(s) to the Department of Environmental Conservation ("DEC"), the signer consents to inspection by DEC staff of the project site or facility for which a permit is sought and, to the extent necessary, areas adjacent to the project site or facility. This consent allows DEC staff to enter upon and pass through such property in order to inspect the project site or facility, without prior notice, between the hours of 7:00 a.m. and 7:00 p.m., Monday through Friday. If DEC staff should wish to conduct an inspection at any other times, DEC staff will so notify the applicant and will obtain a separate consent for such an inspection.

Inspections may take place as part of the application review prior to a decision to grant or deny the permit(s) sought. By signing this consent form, the signer agrees that this consent remains in effect as long as the application is pending, and is effective regardless of whether the signer, applicant or an agent is present at the time of the inspection. In the event that the project site or facility is posted with any form of "posted" or "keep out" notices, or fenced in with an unlocked gate, this permission authorizes DEC staff to disregard such notices or unlocked gates at the time of inspection.

The signer further agrees that during an inspection, DEC staff may, among other things, take measurements, may analyze physical characteristics of the site including, but not limited to, soils and vegetation (taking samples for analysis), and may make drawings and take photographs.

Failure to grant consent for an inspection is grounds for, and may result in, denial of the permit(s) sought by the application.

Permission is granted for inspection of property located at the following address(es):

_____

_____

*By signing this form, I affirm under penalty of perjury that I am authorized to give consent to entry by DEC staff as described above. I understand that false statements made herein are punishable as a Class A misdemeanor pursuant to Section 210.45 of the Penal Law.**

President\CEO		Dec. 6, 2010
Print Name and Title	Signature	Date

*The signer of this form must be an individual or authorized representative of a legal entity that:

- owns fee title and is in possession of the property identified above;
- maintains possessory interest in the property through a lease, rental agreement or other legally binding agreement; or
- is provided permission to act on behalf of an individual or legal entity possessing fee title or other possessory interest in the property for the purpose of consenting to inspection of such property.

APPENDIX B

- **NEW YORK STATE DEPARTMENT OF STATE COASTAL MANAGEMENT PROGRAM - FEDERAL CONSISTENCY ASSESSMENT FORM**
- **NEW YORK CITY WATERFRONT REVITALIZATION PROGRAM - CONSISTENCY ASSESSMENT FORM**
- **COASTAL CONSISTENCY ASSESSMENT SUPPLEMENT**

NEW YORK STATE DEPARTMENT OF STATE
COASTAL MANAGEMENT PROGRAM

Federal Consistency Assessment Form

An applicant, seeking a permit, license, waiver, certification or similar type of approval from a federal agency which is subject to the New York State Coastal Management Program (CMP), shall complete this assessment form for any proposed activity that will occur within and/or directly affect the State's Coastal Area. This form is intended to assist an applicant in certifying that the proposed activity is consistent with New York State's CMP as required by U.S. Department of Commerce regulations (15 CFR 930.57). It should be completed at the time when the federal application is prepared. The Department of State will use the completed form and accompanying information in its review of the applicant's certification of consistency.

A. APPLICANT (please print)

1. Name: Champlain Hudson Power Express, Inc. & CHPE Properties

2. Address: Pieter Schuyler Building, 600 Broadway, Albany, NY 12207-2283

3. Telephone: Area Code (518) 465-0710

B. PROPOSED ACTIVITY

1. Brief description of activity:

The Project consists of a 1,000 megawatt (MW) underwater/underground HVDC electric transmission system extending from the international border between Canada and the United States to New York City. The Applicants propose to develop the CHPE Project to deliver clean and renewable sources of power to New York City.

2. Purpose of activity:

The stated purpose of the CHPE Project is to supply clean and renewable sources of power to the NY ISO load center in New York City without contributing to transmission congestion on the electric grid.

3. Location of activity:

See Attachments	See Attachments	See Attachments
County	City, Town, or Village	Street or Site Description

4. Type of federal permit/license required: USACE Section 404/10; USDOE Presidential Permit

5. Federal application number, if known: USACE File 2009-01089-EHA; PP-362

6. If a state permit/license was issued or is required for the proposed activity, identify the state agency and provide the application or permit number, if known:

New York State Public Service Commission, Case 10-T-0139

C. COASTAL ASSESSMENT Check either "YES" or "NO" for each of these questions. The numbers following each question refer to the policies described in the CMP document (see footnote on page 2) which may be affected by the proposed activity.

1. Will the proposed activity result in any of the following:	YES	NO
a. Large physical change to a site within the coastal area which will require the preparation of an environmental impact statement? (11, 22, 25, 32, 37, 38, 41, 43)	☒	☐
b. Physical alteration of more than two acres of land along the shoreline, land under water or coastal waters? (2, 11, 12, 20, 28, 35, 44)	☒	☐
c. Revitalization/redevelopment of a deteriorated or underutilized waterfront site? (1)	☐	☒
d. Reduction of existing or potential public access to or along coastal waters? (19, 20)	☐	☒
e. Adverse effect upon the commercial or recreational use of coastal fish resources? (9,10)	☐	☒
f. Siting of a facility essential to the exploration, development and production of energy resources in coastal waters or on the Outer Continental Shelf? (29)	☐	☒
g. Siting of a facility essential to the generation or transmission of energy? (27)	☒	☐
h. Mining, excavation, or dredging activities, or the placement of dredged or fill material in coastal waters? (15, 35)	☒	☐
i. Discharge of toxics, hazardous substances or other pollutants into coastal waters? (8, 15, 35)	☐	☒
j. Draining of stormwater runoff or sewer overflows into coastal waters? (33)	☐	☒
k. Transport, storage, treatment, or disposal of solid wastes or hazardous materials? (36, 39)	☒	☐
l. Adverse effect upon land or water uses within the State's small harbors? (4)	☐	☒

2. Will the proposed activity affect or be located in, on, or adjacent to any of the following:	YES	NO
a. State designated freshwater or tidal wetland? (44)	☒	☐
b. Federally designated flood and/or state designated erosion hazard area? (11, 12, 17,)	☒	☐
c. State designated significant fish and/or wildlife habitat? (7)	☒	☐
d. State designated significant scenic resource or area? (24)	☒	☐
e. State designated important agricultural lands? (26)	☐	☒
f. Beach, dune or barrier island? (12)	☐	☒
g. Major ports of Albany, Buffalo, Ogdensburg, Oswego or New York? (3)	☐	☒
h. State, county, or local park? (19, 20)	☒	☐
i. Historic resource listed on the National or State Register of Historic Places? (23)	☒	☐

3. Will the proposed activity require any of the following:	YES	NO
a. Waterfront site? (2, 21, 22)	☐	☒
b. Provision of new public services or infrastructure in undeveloped or sparsely populated sections of the coastal area? (5)	☐	☒
c. Construction or reconstruction of a flood or erosion control structure? (13, 14, 16)	☐	☒
d. State water quality permit or certification? (30, 38, 40)	☒	☐
e. State air quality permit or certification? (41, 43)	☐	☒

4. Will the proposed activity occur within and/or affect an area covered by a State approved local waterfront revitalization program? (see policies in local program document)	YES	NO
	☒	☐

D. ADDITIONAL STEPS

1. If all of the questions in Section C are answered "NO", then the applicant or agency shall complete Section E and submit the documentation required by Section F.

2. If any of the questions in Section C are answered "YES", then the applicant or agent is advised to consult the CMP, or where appropriate, the local waterfront revitalization program document*. The proposed activity must be analyzed in more detail with respect to the applicable state or local coastal policies. On a separate page(s), the applicant or agent shall: (a) identify, by their policy numbers, which coastal policies are affected by the activity, (b) briefly assess the effects of the activity upon the policy; and, (c) state how the activity is consistent with each policy. Following the completion of this written assessment, the applicant or agency shall complete Section E and submit the documentation required by Section F.

E. CERTIFICATION

The applicant or agent must certify that the proposed activity is consistent with the State's CMP or the approved local waterfront revitalization program, as appropriate. If this certification cannot be made, the proposed activity shall not be undertaken. If this certification can be made, complete this Section.

"The proposed activity complies with New York State's approved Coastal Management Program, or with the applicable approved local waterfront revitalization program, and will be conducted in a manner consistent with such program."

Applicant/Agent's Name: Champlain Hudson Power Express, Inc. & CHPE Properties

Address: Pieter Schuyler Building, 600 Broadway, Albany, NY 12207-2283

Telephone: Area Code (518) 465-0710

Applicant/Agent's Signature: _____ _____ Date: December 6, 2010

F. SUBMISSION REQUIREMENTS

1. The applicant or agent shall submit the following documents to the **New York State Department of State, Office of Coastal, Local Government and Community Sustainability, Attn: Consistency Review Unit, 1 Commerce Plaza, 99 Washington Avenue - Suite 1010, Albany, New York 12231.**

a. Copy of original signed form.
b. Copy of the completed federal agency application.
c. Other available information which would support the certification of consistency.

2. The applicant or agent shall also submit a copy of this completed form along with his/her application to the federal agency.

3. If there are any questions regarding the submission of this form, contact the Department of State at (518) 474-6000.

*These state and local documents are available for inspection at the offices of many federal agencies, Department of environmental Conservation and Department of State regional offices, and the appropriate regional and county planning agencies. Local program documents are also available for inspection at the offices of the appropriate local government.

For Internal Use Only:
Date Received: _____

WRP no._____
DOS no._____

NEW YORK CITY WATERFRONT REVITALIZATION PROGRAM
Consistency Assessment Form

Proposed actions that are subject to CEQR, ULURP or other local, state or federal discretionary review procedures, and that are within New York City's designated coastal zone, must be reviewed and assessed for their consistency with the *New York City Waterfront Revitalization Program (WRP)*. The WRP was adopted as a 197-a Plan by the Council of the City of New York on October 13, 1999, and subsequently approved by the New York State Department of State with the concurrence of the United States Department of Commerce pursuant to applicable state and federal law, including the Waterfront Revitalization of Coastal Areas and Inland Waterways Act. As a result of these approvals, state and federal discretionary actions within the city's coastal zone must be consistent to the maximum extent practicable with the WRP policies and the city must be given the opportunity to comment on all state and federal projects within its coastal zone.

This form is intended to assist an applicant in certifying that the proposed activity is consistent with the WRP. It should be completed when the local, state, or federal application is prepared. The completed form and accompanying information will be used by the New York State Department of State, other state agencies or the New York City Department of City Planning in their review of the applicant's certification of consistency.

A. APPLICANT

1. Name: Champlain Hudson Power Express Inc. and CHPE Properties, Inc.
2. Address: Pieter Schuyler Building, 600 Broadway, Albany, NY 12207-2283
3. Telephone: 518-465-0710 Fax:_____ E-mail: bill.helmer@transmissiondevelopers.com
4. Project site owner:_____

B. PROPOSED ACTIVITY

1. Brief description of activity:

   The CHPE Project consists of a 1,000 MW HVDC transmission system extending from the International border between Canada and the U.S. and New York City, NY. The HVDC transmission system consists of two approximately 6-inch diameter HVDC submarine cables buried beneath the bed of Lake Champlain and the Hudson River. To bypass the Champlain Canal and a portion of the upper Hudson River, two 6-inch diameter HVDC land cables will be buried underground within a railroad right-of-way from Whitehall, NY to Coeymans, NY. The HVDC cables will terminate at an HVDC converter station located in Yonkers, NY. From Yonkers, NY, two bundles of three AC cables will continue south through the Hudson River, Harlem River, and East River and terminate at the planned Poletti Substation in Astoria, Queens NY.

2. Purpose of activity:

   The stated purpose of the CHPE Project is to supply clean and renewable sources of power to the NY ISO load center in New York City without contributing to transmission congestion on the electric grid.

3. Location of activity: (street address/borough or site description):

   The submarine and land cables will be located in the following counties: Clinton, Essex, Washington, Saratoga, Schenectady, Albany, Rensselaer, Greene, Columbia, Ulster, Duchess, Orange, Putnam, Rockland, Westchester, Bronx, New York, and Queens.
   The converter station will be located at multiple properties at the intersection of Wells Avenue and Atherton Street in Yonkers, NY.
   The interconnection point will be located to the north of the intersection of 20th Avenue and 31st Street in Queens, NY.

Proposed Activity Cont'd

4. If a federal or state permit or license was issued or is required for the proposed activity, identify the permit type(s), the authorizing agency and provide the application or permit number(s), if known:

   U.S. Department of Energy - Presidential Permit (PP-362);
   U.S. Army Corps of Engineers - Section 10/404 Permit (2009-01089-EHA);
   New York PSC - Article VII Certificate of Environmental Compatibility and Public Need (Case 10-T-0139)

5. Is federal or state funding being used to finance the project? If so, please identify the funding source(s).

   The Applicants have applied to the U.S. Department of Energy for a Federal loan guarantee in response to a DOE competitive solicitation "Federal Loan Guarantees for Electric Power Transmission Infrastructure Investment Projects," issued under Section 1705, Title XVII, of the Energy Policy Act of 2005.

6. Will the proposed project require the preparation of an environmental impact statement?
   Yes ✔ No ____ If yes, identify Lead Agency:

   U.S. Department of Energy

7. Identify **city** discretionary actions, such as a zoning amendment or adoption of an urban renewal plan, required for the proposed project.

   The Applicants are unaware of any required discretionary actions at this point.

C. COASTAL ASSESSMENT

Location Questions:	**Yes**	**No**
1. Is the project site on the waterfront or at the water's edge?	✔	
2. Does the proposed project require a waterfront site?		✔
3. Would the action result in a physical alteration to a waterfront site, including land along the shoreline, land underwater, or coastal waters?		✔

Policy Questions	**Yes**	**No**

The following questions represent, in a broad sense, the policies of the WRP. Numbers in parentheses after each question indicate the policy or policies addressed by the question. The new Waterfront Revitalization Program offers detailed explanations of the policies, including criteria for consistency determinations.

Check either "Yes" or "No" for each of the following questions. For all "yes" responses, provide an attachment assessing the effects of the proposed activity on the relevant policies or standards. Explain how the action would be consistent with the goals of those policies and standards.

4. Will the proposed project result in revitalization or redevelopment of a deteriorated or under-used waterfront site? (1)		✔
5. Is the project site appropriate for residential or commercial redevelopment? (1.1)		✔
6. Will the action result in a change in scale or character of a neighborhood? (1.2)		✔

Policy Questions cont'd	Yes	No
7. Will the proposed activity require provision of new public services or infrastructure in undeveloped or sparsely populated sections of the coastal area? (1.3)		✔
8. Is the action located in one of the designated Significant Maritime and Industrial Areas (SMIA): South Bronx, Newtown Creek, Brooklyn Navy Yard, Red Hook, Sunset Park, or Staten Island? (2)		✔
9. Are there any waterfront structures, such as piers, docks, bulkheads or wharves, located on the project sites? (2)		✔
10. Would the action involve the siting or construction of a facility essential to the generation or transmission of energy, or a natural gas facility, or would it develop new energy resources? (2.1)	✔	
11. Does the action involve the siting of a working waterfront use outside of a SMIA? (2.2)		✔
12. Does the proposed project involve infrastructure improvement, such as construction or repair of piers, docks, or bulkheads? (2.3, 3.2)		✔
13. Would the action involve mining, dredging, or dredge disposal, or placement of dredged or fill materials in coastal waters? (2.3, 3.1, 4, 5.3, 6.3)	✔	
14. Would the action be located in a commercial or recreational boating center, such as City Island, Sheepshead Bay or Great Kills or an area devoted to water-dependent transportation? (3)		✔
15. Would the proposed project have an adverse effect upon the land or water uses within a commercial or recreation boating center or water-dependent transportation center? (3.1)		✔
16. Would the proposed project create any conflicts between commercial and recreational boating? (3.2)		✔
17. Does the proposed project involve any boating activity that would have an impact on the aquatic environment or surrounding land and water uses? (3.3)	✔	
18. Is the action located in one of the designated Special Natural Waterfront Areas (SNWA): Long Island Sound- East River, Jamaica Bay, or Northwest Staten Island? (4 and 9.2)		✔
19. Is the project site in or adjacent to a Significant Coastal Fish and Wildlife Habitat? (4.1)	✔	
20. Is the site located within or adjacent to a Recognized Ecological Complex: South Shore of Staten Island or Riverdale Natural Area District? (4.1and 9.2)		✔
21. Would the action involve any activity in or near a tidal or freshwater wetland? (4.2)	✔	
22. Does the project site contain a rare ecological community or would the proposed project affect a vulnerable plant, fish, or wildlife species? (4.3)	✔	
23. Would the action have any effects on commercial or recreational use of fish resources? (4.4)		✔
24. Would the proposed project in any way affect the water quality classification of nearby waters or be unable to be consistent with that classification? (5)		✔
25. Would the action result in any direct or indirect discharges, including toxins, hazardous substances, or other pollutants, effluent, or waste, into any waterbody? (5.1)		✔
26. Would the action result in the draining of stormwater runoff or sewer overflows into coastal waters? (5.1)		✔
27. Will any activity associated with the project generate nonpoint source pollution? (5.2)		✔
28. Would the action cause violations of the National or State air quality standards? (5.2)		✔

Policy Questions cont'd	Yes	No
29. Would the action result in significant amounts of acid rain precursors (nitrates and sulfates)? (5.2C)		✔
30. Will the project involve the excavation or placing of fill in or near navigable waters, marshes, estuaries, tidal marshes or other wetlands? (5.3)	✔	
31. Would the proposed action have any effects on surface or ground water supplies? (5.4)		✔
32. Would the action result in any activities within a federally designated flood hazard area or state-designated erosion hazards area? (6)	✔	
33. Would the action result in any construction activities that would lead to erosion? (6)		✔
34. Would the action involve construction or reconstruction of a flood or erosion control structure? (6.1)		✔
35. Would the action involve any new or increased activity on or near any beach, dune, barrier island, or bluff? (6.1)		✔
36. Does the proposed project involve use of public funds for flood prevention or erosion control? (6.2)		✔
37. Would the proposed project affect a non-renewable source of sand ? (6.3)		✔
38. Would the action result in shipping, handling, or storing of solid wastes, hazardous materials, or other pollutants? (7)	✔	
39. Would the action affect any sites that have been used as landfills? (7.1)		✔
40. Would the action result in development of a site that may contain contamination or that has a history of underground fuel tanks, oil spills, or other form or petroleum product use or storage? (7.2)	✔	
41. Will the proposed activity result in any transport, storage, treatment, or disposal of solid wastes or hazardous materials, or the siting of a solid or hazardous waste facility? (7.3)	✔	
42. Would the action result in a reduction of existing or required access to or along coastal waters, public access areas, or public parks or open spaces? (8)		✔
43. Will the proposed project affect or be located in, on, or adjacent to any federal, state, or city park or other land in public ownership protected for open space preservation? (8)	✔	
44. Would the action result in the provision of open space without provision for its maintenance? (8.1)		✔
45. Would the action result in any development along the shoreline but NOT include new water-enhanced or water-dependent recreational space? (8.2)		✔
46. Will the proposed project impede visual access to coastal lands, waters and open space? (8.3)		✔
47. Does the proposed project involve publicly owned or acquired land that could accommodate waterfront open space or recreation? (8.4)		✔
48. Does the project site involve lands or waters held in public trust by the state or city? (8.5)	✔	
49. Would the action affect natural or built resources that contribute to the scenic quality of a coastal area? (9)		✔
50. Does the site currently include elements that degrade the area's scenic quality or block views to the water? (9.1)		✔

Policy Questions cont'd	Yes	No
51. Would the proposed action have a significant adverse impact on historic, archeological, or cultural resources? (10)		✔
52. Will the proposed activity affect or be located in, on, or adjacent to an historic resource listed on the National or State Register of Historic Places, or designated as a landmark by the City of New York? (10)	✔	

D. CERTIFICATION

The applicant or agent must certify that the proposed activity is consistent with New York City's Waterfront Revitalization Program, pursuant to the New York State Coastal Management Program. If this certification cannot be made, the proposed activity shall not be undertaken. If the certification can be made, complete this section.

"The proposed activity complies with New York State's Coastal Management Program as expressed in New York City's approved Local Waterfront Revitalization Program, pursuant to New York State's Coastal Management Program, and will be conducted in a manner consistent with such program."

Applicant/Agent Name: Champlain Hudson Power Express Inc. & CHPE Properties, Inc.

Address: Pieter Schuyler Building, 600 Broadway, Albany, New York, 12207

Telephone 518-465-0710

Applicant/Agent Signature:  Date: December 6, 2010

CHAMPLAIN HUDSON POWER EXPRESS PROJECT

COASTAL ZONE CONSISTENCY ASSESSMENT SUPPLEMENTAL INFORMATION

CHAMPLAIN HUDSON POWER EXPRESS PROJECT
COASTAL ZONE CONSISTENCY ASSESSMENT
SUPPLEMENTAL INFORMATION

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1.0 COASTAL ZONE CONSISTENCY ASSESSMENT

The Federal Coastal Zone Management Act and the New York State Waterfront Revitalization of Coastal Areas and Inland Waterways Act established direction for the appropriate use and protection of the nation's and New York State's coastal areas and waterways. As part of the New York State Coastal Management Program, 44 state coastal policies were developed. In some parts of the State, the coastal policies have been refined to take into account regional and local considerations. In New York City, the state coastal policies have been refined in the City's Waterfront Revitalization Program. Additionally, throughout the state, certain local municipalities have approved Local Waterfront Revitalization Programs (LWRPs) to address their specific local issues and concerns.

The Federal regulations that implement the consistency provisions of the Coastal Zone Management Act (CZMA) are found at 15 CFR Part 930, which establish the procedures to be followed in order to assure that federal agency activities are consistent with the enforceable policies of the New York State Coastal Management Program.

Any applicant for a federal agency license or permit is required to submit a certification that the proposed activity is consistent with all applicable state coastal policies. The consistency certification must include the following: a completed Federal Consistency Assessment Form; an identification of coastal policies affected by an applicant's proposed activity; a brief assessment of the effects of the activity on the applicable policies; and a statement indicating how the activity is consistent with each applicable policy.

A Coastal Management Plan Federal Consistency Assessment Form (FCAF) and a New York City Waterfront Revitalization Program Consistency Assessment Form (LWRP CAF) have been completed. The FCAF and the LWRP CAF identify those policies from their respective programs that are applicable or potentially applicable to the Project based on a review of the components of the Project located within the Coastal Area. Additionally, the Applicants performed a review of all other LWRPs that pertain to the territory within the Project area.

The CHPE Project has been sited and designed, and will be constructed and operated, in a manner that is consistent with the applicable New York State Department of State (NYSDOS) Coastal Management Program (CMP) State Coastal Policies, the New York City Local Waterfront Revitalization Program (LWRP) Coastal Policies, and all other applicable LWRPs within the Project area. The specific policies that are relevant to the Project are listed below and are accompanied by a brief description of the manner in which the Project is consistent.

2.0 NEW YORK STATE DEPARTMENT OF STATE COASTAL MANAGEMENT PROGRAM STATE COASTAL POLICIES

State Policy 2 - *Facilitate the siting of water-dependent uses and facilities on or adjacent to coastal waters.*

The CHPE Project will involve solid state transmission cables buried and laid within waterways of the state (Lake Champlain, Hudson River, Harlem River, and East River).

The transmission cables will be sited, designed, and installed to avoid impacts to current and/or future water-dependent projects. The cables will make landfall and extend inland to a converter station in Yonkers, NY and a substation in Queens, NY. The cable landfall will be buried via HDD and will not affect the current and/or future siting of water-dependent uses at the waters edge with the exception of the required narrow utility easement (approximately 30 feet) for the buried cable. Additionally, the Yonkers converter station and the Queens substation are not located on waterfront properties.

State Policy 7 *- Significant Coastal Fish and Wildlife Habitats will be protected, preserved, and where practical, restored so as to maintain their viability as habitats.*

Where the transmission cables transition from land to water (i.e., Hudson River in Coeymans, NY) the Project will utilize HDD methods to install the cable. This method will be utilized to minimize disturbance to shoreline and nearshore coastal fish and wildlife habitats. The HDD entry/exit point is designed to enter/exit the water at a depth sufficient to avoid impacts to shoreline, intertidal and nearshore areas.

The proposed underwater cable route intersects with six Significant Coastal Fish and Wildlife Habitats (SCFWH): Esopus Estuary, Kingston Deepwater Habitat, Poughkeepsie Deepwater Habitat, Hudson rivermile 44-56, Haverstraw Bay, and the Lower Hudson Reach.

The deepwater area near the mouth of Esopus Creek is recognized as post-spawning and wintering habitat for shortnose sturgeon. The deepwater areas at Kingston and Poughkeepsie are recognized as spawning and wintering habitat for shortnose sturgeon. The deepwater area of Hudson Rivermile 44-56 is recognized as a spawning area for striped bass and wintering habitat for shortnose sturgeon. The deepwater area in Haverstraw Bay is recognized as wintering habitat for shortnose sturgeon. Atlantic sturgeon can also be expected to use this area, as well as overwintering striped bass. Shortnose sturgeon favor the channel areas of the Hudson and have been shown to use both naturally deep and dredged channels.

The Applicants will work cooperatively with agencies to determine appropriate work windows for cable installation in order to avoid Project activities during seasonal use of the aforementioned Significant Coastal Habitats. Where the Project route cannot avoid designated Significant Coastal Habitat, the cables will be installed within previously disturbed areas, such as the side slope of the federal navigation channel, which will also avoid the deep areas of the navigation channel favored by shortnose sturgeon.

State Policy 11 *- Buildings and other structures will be sited in the coastal area so as to minimize damage to property and the endangering of human lives caused by flooding and erosion.*

Structures associated with the Project will be developed on a previously disturbed property in an urban/industrial zone and will not affect potential flooding or erosion in coastal areas. The cables associated with the Project will be buried underwater or

underground and the surface vegetation/topography will be restored to its original state. HDD methods will be utilized to install the cables at landfall locations in order to avoid impacts to the nearshore and shoreline areas.

State Policy 12 *- Activities or development in the coastal area will be undertaken so as to minimize damage to natural resources and property from flooding and erosion by protecting natural protective features including beaches, dunes, barrier islands and bluffs.*

See response to State Policy 11.

State Policy 15 *- Mining, excavation, or dredging in coastal waters shall not significantly interfere with the natural coastal processes which supply beach materials to land adjacent to such waters and shall be undertaken in a manner which will not cause an increase in erosion of such land.*

Along the majority of the Project's submarine cable route, cables will be buried approximately 3 to 4 ft beneath the lake/river bed utilizing a water-jetting machine. For these portions of the route, sediment will not be removed from the trench; instead, sediment fluidized during water-jetting will be allowed to naturally backfill the trench. Where the Project's submarine cable route crosses or is located within federal navigation channels, cable will be buried to the required depths utilizing water jetting techniques and where necessary, conventional dredging techniques. In the event that conventional dredging is required for cable installation and sediment removed from the trench cannot be re-used as backfill, such dredging will be kept to a minimum and the sediments will be appropriately re-used or disposed of pursuant to permit requirements. All portions of the submarine cable route will then be allowed to return to their pre-installation condition. Therefore, installation of the underwater portions of the transmission cable is not expected to interfere with natural coastal processes or increase erosion of adjacent lands.

State Policy 17 *- Non-structural measures to minimize damage to natural resources and property from flooding and erosion shall be used whenever possible.*

At cable landfall locations, the cables will be installed via HDD methods to avoid impacts to the nearshore and shoreline areas.

State Policy 19 *- Protect, maintain, and increase the level and types of access to public water-related recreation resources and facilities.*

The Yonkers converter station site will be constructed on a private industrial site that is already disturbed and will not affect public access to the water.

Cables installation at shoreline crossings will be installed using HDD methods which will not result in impacts to public access to the waterbodies. Underwater cable burial will not result in impacts to public access. During construction, to protect the safety of the public, access will be restricted around active in-water construction locations. This work

will only occur on a small area of the overall waterbody and will be temporary in any one location, so impacts will be minor during the construction period.

State Policy 20 *- Access to publicly-owned foreshore and to lands immediately adjacent to the foreshore or the water's edge that are publicly-owned shall be provided and it shall be provided in a manner compatible with adjoining uses.*

The Project will not affect access to publicly-owned foreshore lands or lands adjacent to the foreshore or the water's edge. See above response to State Policies 11 and 19.

State Policy 22 *- Development, when located adjacent to the shore, will provide for water-related recreation, whenever such use is compatible with reasonably anticipated demand for such activities, and is compatible with the primary purpose of the development.*

The Project will not affect current or future development for water-related recreation at properties located adjacent to the shore.

State Policy 23 *- Protect, enhance and restore structures, districts, areas and sites that are of significance in the history, architecture, archaeology or culture of the state, its communities, or the nation.*

In general, the Project is unlikely to have a significant effect on standing historic structures, districts, areas or sites of significance within the Project's vicinity. With the exception of the newly constructed Yonkers converter station on a previously disturbed, industrial zoned area, the Project's infrastructure will be buried and will not have an effect on the viewshed. The converter station will be designed to match the character of the surrounding area, and is not expected to have an adverse impact on any historic properties in the vicinity.

The Applicants are in the process of conducting a detailed analysis of archaeological sites, historic properties, and shipwrecks along the Project route, including those resources listed in or eligible for inclusion in the National Register of Historic Places. The Project will avoid archaeological, historical and cultural resources to the greatest extent feasible. It is anticipated that, with appropriate avoidance and mitigation, no adverse impacts on these resources will occur.

State Policy 24 *- Prevent impairment of scenic resources of statewide significance.*

With the exception of the Yonkers converter station, the Project's principal components will be buried and will not have an effect on any viewsheds. The Yonkers converter station will be designed to match the character of the surrounding area, which includes existing industrial land use, and is not expected to have an adverse impact on any scenic resources.

State Policy 25 *- Protect, restore or enhance natural and man-made resources which are not identified as being of statewide significant, but which contribute to the overall scenic quality of the coastal area.*

The transmission cables associated with the Project will be buried; there will be no overhead transmission cables. The Yonkers converter station will be built on an inland property in an existing industrial zoned area on a previously disturbed property. The converter station will be located within a building, which will be designed to blend with the architecture of the surrounding development. The Project will connect to an existing substation (currently under construction) on an inland property in Queens, NY. Therefore, the Project will not affect the overall scenic quality of the coastal area.

State Policy 27 *- Decisions on the siting and construction of major energy facilities in the coastal area will be based on public energy needs, compatibility of such facilities with the environment, and the facility's need for a shorefront location.*

The Project has filed an application for a Certificate of Environmental Compatibility and Public Need (CECPN) under Article VII of the New York State Public Service Law. The Project will provide needed electricity to load centers in the NYISO via an HVDC transmission cable system that is primarily buried in the riverbed of coastal area waterways (Hudson River, Harlem River, and East River). The Project has been designed to utilize construction techniques to avoid or minimize environmental impacts. For example, the majority of the submarine cable will be installed using water-jetting methods, which minimize sediment transport and impacts to water quality. HDD methods will be used at cable landfall locations (i.e., Yonkers and Queens) in order to avoid potential impacts to nearshore and shoreline resource areas. Additionally, the Project's converter station and substation interconnections will be located on inland properties and will not require shorefront properties, other than narrow easements.

State Policy 28 *- Ice management practices shall not interfere with the production of hydroelectric power, damage significant fish and wildlife and their habitats, or increase shoreline erosion or flooding.*

Not applicable.

State Policy 30 *- Municipal, industrial, and commercial discharge of pollutants, including but not limited to toxic and hazardous substances, into coastal waters will conform to state and national water quality standards.*

A three-dimensional hydrodynamic and time-variable water quality model was developed by the Applicants to assess water quality impacts and compliance with applicable water quality standards in the Hudson, Harlem and East Rivers. The model was used to simulate ten contaminants that were found in sediment cores collected during the Spring 2010 Marine Route Survey. The maximum model-computed concentrations of contaminants along the cable route were graphically presented and compared to New York State's water quality standards.

The effects of the proposed cable installation are projected to comply with state and national water quality standards that are based on protecting aquatic life from acute toxicity. These standards are the most appropriate criteria for the assessment of the proposed Project given the non-chronic (i.e., short-term) and incremental nature of the potential exposure to sediment contaminants resulting from the cable installation.

Effects of the proposed cable installation in portions of the Upper Hudson River PCB Superfund Site were also modeled. The model indicated that the projected maximum total PCB concentration during cable installation would be below the EPA's Engineering Performance Standard water quality criteria for dredging resuspension at the Hudson River PCBs Superfund Site (EPA 2003).

State Policy 32 *- Encourage the use of alternative or innovative sanitary waste systems in small communities where the costs of conventional facilities are unreasonably high, given the size of the existing tax base of these communities.*

Not applicable.

State Policy 35 *- Dredging and filling in coastal waters and disposal of dredged material will be undertaken in a manner that meets existing state permit requirements, and protects significant fish and wildlife habitats, scenic resources, natural protective features, important agricultural lands, and wetlands.*

During installation of the Project transmission cables, dredging and/or filling in coastal waters may be necessary in certain, limited areas. These areas may include limited areas of dredging within federal navigation channels or limited areas characterized as fill locations due to the use of rip rap or other protective cable coverings. However, subsequent to the installation of the Project, the area will be allowed to return to its original state.

The Applicants have conducted sediment sampling and analyses to characterize the sediment type and quality and has also conducted water quality modeling to ensure that the Project will be able to comply with applicable water quality standards. The Project will comply with all applicable federal and state laws and regulations regarding water quality, fish and wildlife habitats, wetlands, scenic resources, natural protective features, important agricultural lands, and important coastal resources in order to avoid or minimize potential affects to these resources by the Project. The Project will obtain all necessary permits associated with dredging or filling activities prior to commencement of work.

State Policy 36 *- Activities related to the shipment and storage of petroleum and other hazardous materials will be conducted in a manner that will prevent or at least minimize spills into coastal waters; all practicable efforts will be undertaken to expedite the cleanup of such discharges; and restitution for damages will be required when these spills occur.*

The Project transmission cables are solid state, i.e. they do not contain fluids. The cable installation equipment will likely include petroleum powered equipment; therefore, a spill prevention control and countermeasure (SPCC) plan will be developed and implemented, pursuant to state and federal regulations, during the use and/or storage of petroleum-containing equipment. The Project's converter station and substation interconnection may include the use or storage of petroleum or hazardous materials. An SPCC plan or its equivalent will be developed for these facilities.

Surface and groundwater resources, significant fish and wildlife habitats, recreation areas, important agricultural land, and scenic resources will be protected by implementing diligent management of any petroleum and hazardous materials during all construction and operation activities.

State Policy 37 *- Best Management Practices will be utilized to minimize the non-point discharge of excess nutrients, organics, and eroded soils into coastal waters.*

Soil erosion and sediment movement will be minimized during construction and operation via erosion control measures and soil stabilization protocols, which will be implemented as necessary to protect the aquatic resources in the area. The Applicants are developing standard Best Management Practices (BMPs) for construction that are currently under review by state agencies.

State Policy 38 *- The quality and quantity of surface water and groundwater supplies will be conserved and protected, particularly where such waters constitute the primary or sole source of water supply.*

The Project is comprised of solid state transmission cable; therefore, the cables do not contain any potentially polluting fluids. Equipment located at the converter station and interconnection site may contain petroleum or hazardous substances; SPCC plans or their equivalent will be developed to ensure that appropriate spill prevention, countermeasure, and contingency measures are implemented wherever Project features present a risk of spill or discharge to waters of the United States.

The Project is required to obtain a water quality certification pursuant to Section 401 of the Clean Water Act. The Project will comply with all requirements of the water quality certification.

Surface and groundwater resources will be protected by implementing diligent management of any hazardous substances on the sites and erosion control measures to prevent sediment transport to the waterway. Applicants have made Freedom of Information Requests for information on drinking water intake systems to four

municipalities who rely upon the Hudson River for water supply. The Applicants will employ Best Management Practices and other protocols so that potential impacts from the Project are commensurate with other natural processes and routine activities in the Hudson River (i.e., storm events, boat traffic, maintenance dredging of navigation channels, etc.)

State Policy 39 *- The transport, storage, treatment and disposal of solid wastes, particularly hazardous wastes, within coastal areas will be conducted in such a manner so as to protect groundwater and surface water supplies, Significant Fish and Wildlife Habitats, recreation areas, important agricultural land, and scenic resources.*

Surface and groundwater resources, significant fish and wildlife habitats, recreation areas, important agricultural land, and scenic resources will be protected by implementing diligent management of any solid wastes during all construction activities. Best Management Practices will be used to protect the aforementioned resources.

State Policy 40 *- Effluent discharges from major steam electric generating and industrial facilities into coastal waters will not be unduly injurious to fish and wildlife and shall conform to state water quality standards.*

Not applicable.

State Policy 41 *- Land use or development in the coastal area will not cause national or state air quality standards to be violated.*

The Project will obtain all applicable air quality permits; therefore, no violations of national or state air quality standards during its construction or operation stages.

State Policy 43 *- Land use or development in the coastal area must not cause the generation of significant amounts of acid rain precursors: nitrates and sulfates.*

The Project will not generate emissions that release nitrates or sulfates to the atmosphere during operation.

State Policy 44 *- Preserve and protect tidal and freshwater wetland and preserve the benefits derived from these areas.*

Subsequent to cable installation, the area will be restored to its original condition. Therefore, any wetlands crossed by the land or submarine cables will remain wetlands after construction. At the Project's landfall locations (i.e., Yonkers and Queens), HDD methods will be used to install the cables in order to avoid potential impacts to nearshore and shoreline resource areas (i.e., wetlands). The HDD is expected to exit the water at a depth sufficient to avoid impacts to intertidal and foreshore areas.

The Yonkers converter station and the Queens interconnection point are located in industrial zones. No wetlands are located at these sites; therefore, construction at these sites will not result in any direct or indirect impacts to wetlands.

3.0 NEW YORK CITY LOCAL WATERFRONT REVITALIZATION PROGRAM COASTAL POLICIES

The CHPE Project is a HVDC transmission system extending from the international border between Canada and the United States to New York City. The Project's HVDC transmission cables will be buried either underground or underwater for the entire route. In New York City, the Project's transmission cables will be buried beneath the riverbed of the Hudson River, Harlem River, and East River before making landfall in Queens, New York where the cables will extend inland for approximately 1 mile to terminate at a spare bay at the 345-kV substation currently under construction by the New York Power Authority on land owned by Con Edison. HDD methods will be utilized at the landfall location in Queens, New York to transition the cables from water to land while avoiding impacts to the shoreline or nearshore areas. Because the cables will be located beneath the waters edge, no waterfront property in New York City is needed to develop this Project, with the exception of a narrow (approximately 30 ft) easement.

Local Policy 2.1 - *Promote water-dependent and industrial uses in Significant Maritime and Industrial Areas.*

The Project is not located in a designated Significant Maritime and Industrial Area (SMIA). The interconnection point at a substation currently under construction (land owned by Con Edison) in Queens, New York is located in a commercial/industrial zone and is not located on a waterfront site. The Project will be designed so as not to affect potential maintenance dredging activities within the navigation channels, which support and promote the development and operation of working waterfront uses. Therefore, the Project will not affect the promotion of water-dependent and industrial uses in SMIAs.

Local Policy 2.3 - *Provide infrastructure improvements necessary to support working waterfront uses.*

The Project's transmission cables will be sited outside the designated navigation channels wherever possible. In areas where a designated navigation channel cannot be avoided, the cables will either be buried within the side slopes associated with the navigation channel or buried within the navigation channel to the depth required by applicable federal and state agencies to avoid impacts to current or future dredging activities located within these navigation channels. The Project will have no other affects on infrastructure supporting the working waterfront uses.

In the event that dredging is required to install the Project's cables, dredge material will be characterized to determine the most appropriate/beneficial reuse or disposal for the material that will not interfere with working waterfront uses.

Local Policy 3.1 *- Support and encourage recreational and commercial boating in New York City's maritime centers.*

The Project is designed to have no long-term impacts to recreational and commercial boating in New York City's maritime centers. During the short-term construction phase of the Project, a cable-laying vessel will be utilized to transport and lay the cable on the riverbed, and a remote operated vehicle (ROV) will be utilized to bury the transmission cable beneath the riverbed. During the construction phase, notifications will be released to alert commercial and recreational boaters to avoid the areas where cable installation is underway, but such avoidance will be highly localized and of temporary duration. Subsequent to construction, there will be no impacts to recreational or commercial boating caused by the Project.

Local Policy 3.3 *- Minimize impact of commercial and recreational boating activities on the aquatic environment and surrounding land and water uses.*

During construction, the cable laying vessel is likely to have petroleum containing equipment on-board. The vessel will utilize best management practices to prevent potential spillage of petroleum products. The vessel will also be equipped and trained to control and respond to a spill in the unlikely event one occurs. The vessel will comply with all applicable laws and regulations related to discharges of waste from the vessel; no waste discharges are anticipated from the vessel. The Project's transmission cables are solid-state cables which contain no liquid, thereby eliminating the potential for a discharge from the cable.

Local Policy 4 *- Protect and restore the quality and function of ecological systems within the New York City coastal area.*

The Project will utilize specific construction windows and techniques designed to avoid or minimize potential impacts to important ecological systems. The Applicants will continue to work with the appropriate federal, state, and local agencies and stakeholders to incorporate best management practices to avoid and minimize any potential impacts to important ecological systems. Operation of the Project is not expected to result in any impacts to any important ecological systems, including those within the New York City coastal areas.

Local Policy 4.1 *- Protect and restore the ecological quality and component habitats and resources within the Special Natural Waterfront Areas, Recognized Ecological Complexes, and Significant Coastal Fish and Wildlife Habitats.*

The Project consists of the burial of HVDC and HVAC transmission cables within waterways of New York City. The cables will be installed primarily via water-jetting techniques, which are designed to minimize impacts to the riverbed and surrounding water quality. For short sections of the Project route, cable burial may not be feasible due to riverbed conditions (i.e., bedrock). In these locations, the cables will be laid on the riverbed with protective coverings (i.e., concrete mattresses or rip-rap). In these

instances, the protective coverings are not anticipated to represent a change in the ecological habitats because the rip-rap will be consistent with the pre-existing hard bottom habitat. Subsequent to installation, the ecological habitats will be allowed to return to their pre-existing condition through natural processes

Local Policy 4.2 *- Protect and restore tidal and freshwater wetlands.*

The Project has been designed to avoid or minimize impacts to tidal and freshwater wetlands. The transmission cables will be buried beneath the riverbed, which will subsequently be allowed to return to its pre-existing condition through natural processes.

Local Policy 4.3 *- Protect vulnerable plant, fish and wildlife species, and rare ecological communities. Design and develop land and water uses to maximize their integration or compatibility with the identified ecological community.*

The Applicants are consulting with federal, state, and local agencies, as applicable, regarding Endangered Species, Threatened Species, Exploitably Vulnerable Species, and Rare Species that may be located within the Project area. The Project will be designed to avoid or minimize impacts to these species to the greatest extent possible.

Local Policy 5.3 *- Protect water quality when excavating or placing fill in navigable waters and in or near marshes, estuaries, tidal marshes, and wetlands.*

Installation of the Project has been designed to comply with federal and state dredging permit requirements, where applicable. Construction windows and best management practices will be utilized to avoid or minimize impacts to water quality and associated aquatic life.

Local Policy 6 *- Minimize loss of life, structures, and natural resources caused by flooding and erosion.*

The Project will not affect flooding or erosion.

Local Policy 6.3 *- Protect and preserve non-renewable sources of sand for beach nourishment.*

The Project will not affect non-renewable sources of sand for beach nourishment.

Local Policy 8 *- Provide public access to and along New York City's coastal waters.*

The Project is a buried transmission cable and will not affect public access to or along New York City's coastal waters.

Local Policy 8.5 *- Preserve the public interest in and use of lands and waters held in public trust by the state and city.*

The Project will require a permitted corridor / easement for the transmission cables buried beneath the riverbed of the Hudson, Harlem, and East Rivers. However, the required easement will be narrow (~30 ft) and will not affect the public interest and use of lands and waters held in public trust by the state and city.

Local Policy 10 *- Protect, preserve and enhance resources significant to the historical, archaeological, and cultural legacy of the New York City coastal area.*

In the spring of 2010, a detailed marine route survey was completed along the Project's entire submarine route, which included the collection of data related to historical, archaeological, and cultural resources along the route. The Project route is being sited and designed based on the results of the spring 2010 survey (and additional surveys, where necessary) in order to avoid impacts to the resources identified.

4.0 LOCAL WATERFRONT REVITALIZATION PLAN (LWRP) ASSESSMENT

Municipalities that border coastal areas and inland waterways prepare LWRPs, in conjunction with the NYSDOS, for the preservation, enhancement, protection, development and use of the state's coastal and inland waterways. Projects which may impact coastal areas or inland waterways must be reviewed for consistency with those LWRPs that pertain to territory within the Project area. The information below includes a review of consistency with LWRPs for both the underwater portions of the Project and the terrestrial portions of the Project potentially located in close proximity to coastal or waterfront areas.

There are 24 municipalities with LWRPs along the cable route, which are listed below in order from the Canadian border south to New York City:

- Town of Essex
- Village of Whitehall
- Town of Schodack/Village of Castleton-On-The-Hudson
- Village of Athens
- Village of Tivoli
- Village of Saugerties
- Town of Redhook
- City of Kingston
- Town of Rhinebeck
- Town of Esopus
- Town of Poughkeepsie
- Town of Lloyd
- City of Beacon

- City of Newburgh
- City of Peekskill
- Town of Stony Point
- Village Haverstraw
- Village of Croton on the Hudson
- Village of Ossining
- Village of Nyack
- Village of Sleepy Hollow
- Village of Piermont
- Village of Dobbs Ferry
- New York City

The Applicants conducted an evaluation of all 24 LWRPs, which consist of state waterfront policies refined to reflect local conditions and circumstances as well as local policies. Additional local policies that relate to the Project are evaluated on a case-by-case basis below. Overall, the LWRP evaluation indicates that the Project is consistent with all of the LWRPs within the Project's proximity.

Additional supporting information has been previously submitted to numerous federal agencies (USACE) and New York State agencies (NYSDOS, NYSDPS, NYSDEC, etc) as part of the March 30, 2010 application to the New York State Public Service Commission for Certificate of Environmental Compatibility and Public Need pursuant to Article VII of the Public Service Law ("Article VII Application"). In particular, Exhibit 4 of the March 2010 Article VII Application includes a comprehensive analysis of the affected environment along the proposed Project route. Additional supporting information was submitted in a supplemental filing in July 2010 ("July 2010 Article VII Supplement")

4.1 Town of Essex

The Town of Essex has identified Split Rock Mountain, Webb Royce Swamp, Essex "Station" and the Boquet River as significant fish and wildlife habitats. Split Rock Mountain, Webb Royce Swamp and Essex "Station" are adjacent to the coastal zone area and will not be affected by this project. The Boquet River discharges into Lake Champlain and will not be affected by this project.

Policy 5 *- Protect and restore ecological resources, including significant fish and wildlife habitats, wetlands and rare ecological communities (similar to State Policy 7).*

> This Project's component in the Town of Essex involves the placement of HVDC cables in the bed of Lake Champlain using water jetting and/or trenching to open up the benthic substrate, lay the cable and re-contour the bottom. The Applicants have and will continue to work cooperatively to ensure that the Project is designed, sited, installed, and operated in a manner that protects and restores important ecological resources.

Additional information regarding fish and wildlife habitats, wetlands, and rare ecological communities was submitted within Exhibit 4 of the March 2010 Article Application. Also, see above response to State Policy 7.

Policy 6 *- Protect and improve water resources (similar to State Policy 38).*

The March 2010 Application (Exhibit 4) included an evaluation of existing water quality along the submarine portions of the Project route. Subsequently, a marine route survey (July 2010 Supplement to Article VII Application) was performed, which sampled sediments for the presence of contaminants. Sediment chemistry and water quality are linked because cable installation will disturb sediments and have the potential to suspend contaminants.

The Applicants conducted a water quality modeling study to predict the distribution and movement of suspended sediment generated by water jetting for cable installation. The study provides a basis for estimating water quality effects and for developing a water quality monitoring plan. Additional sediment chemistry data will be collected to refine observed contaminant distribution and to provide current sediment chemistry data for specific locations for puposes of HDD and conventional dredging.

Water quality is assessed through limits on selected water quality parameters that are conditions of the Project permits. Compliance with these limits will be established through monitoring of installation process and adjustments to cable installation operations when needed to avoid non-compliance.

A suspended sediment and water quality monitoring plan will be developed in consultation with federal and state authorities and agencies, which will outline the mitigation measures to eliminate or minimize impacts to water resources along the route.

For additional information, see above response to State Policies 30 and 38.

Policy 6.3 *- "Protect water quality when excavating or placing fill in navigable waters and in or near marshes, estuaries, and wetlands" (State Policies 34 and 35).*

The boundaries of any wetlands, streams and other water resources along the Project route have been identified in the field during development of the Article VII Application and supplemental filings. All delineated wetlands, streams and water resources will be mapped and prior to construction all field identified sensitive resources will be flagged to ensure resource protection. Protective measures will be implemented to ensure minimization of impacts to wetlands and other water resources potentially resulting from sedimentation, erosion, turbidity, unanticipated spills or leaks of fuel, and/or hazardous materials.

In general, impacts to marshes, estuaries, and wetlands in the Project area are expected to be temporary and limited to the construction-phase of the Project. The Project has been designed to avoid marshes, estuaries, and wetlands, wherever possible. Where wetlands

cannot be avoided, the Applicants will implement appropriate protection measures during construction to minimize and/or mitigate for any impacts to benefits derived from these resources. Draft protection measures are currently under review by state agencies but the final protocols are likely to include the following:

a) Applicants will minimize work within and across streams, wetlands, or other water resources to the extent possible during preconstruction, construction, operation, and maintenance activities.

b) Applicants will notify appropriate agencies at least five (5) business days prior to construction involving federal and/or state-regulated wetland crossings.

c) Sediment and erosion control devices will be installed across the right-of-way on any slopes leading into wetlands and along the edge of the construction right-of-way, as necessary, to prevent spoil from flowing off the right-of-way into a wetland.

d) To the extent possible, work which must be in a wetland shall be scheduled to be started and completed in the dry or when the ground is frozen.

e) To expedite revegetation of wetlands, the top one (1) foot of soil will be stripped from over the trench. The exception to this includes areas with standing water or saturated soils, areas where no topsoil layer is evident or areas where the topsoil layer exceeds the depth of the trench.

f) Construction vehicles and equipment will be limited to established access roads and construction work spaces.

g) Construction equipment operating within wetlands will be limited primarily to those needed to dig the trench, install the cable, backfill, and restore the right-of-way. All other construction equipment will use access roads in upland areas to the extent practicable.

h) To minimize disturbance and compaction in wetlands with saturated soils or standing water, either wide-tracked or balloon-tired equipment operating from timber corduroy or timber mats will be used. Imported rock, stumps, brush, or off-site soil as temporary or permanent fill will be prohibited. Following construction, all materials used to stabilize the right-of-way will be removed.

i) Construction materials, including fuels, will not be stored within one hundred (100) feet of any surface water or wetland system, unless no alternative is available.

j) Construction equipment will not be refueled within one hundred (100) feet of any surface water or wetland system.

k) Spill response and mitigation procedures will be implemented in the case of any accidental spills of chemical, fuel, or other hazardous materials.

l) Construction equipment will not be washed in wetlands or within one hundred (100) feet of any wetland unless specified to minimize the spread of invasive species. Run-off resulting from washing operation shall not be permitted to directly enter any watercourses or wetlands.

m) Any temporary access routes or parking areas adjacent to wetlands and waterbodies will be graded to direct runoff away from water resources.

n) Spoil or excavated materials will be stored outside of wetlands and wetland adjacent areas. All stockpiled material will be stored at a sufficient distance to prevent sedimentation into any stream, wetland, wetland adjacent area, or other waterbody. If no storage area is available, spoil will be adequately protected and erosion and sedimentation control measures will be installed to prevent materials from entering adjacent areas. All excess material will be disposed of in approved upland locations.

o) Unless work activities will resume within fourteen (14) days, Applicants will stabilize disturbed soils as soon as possible and no more than seven (7) days upon temporary or permanent completion of ground-disturbing activities. If soil stabilization measures are not possible within seven (7) days due to snow cover, frozen ground or other weather conditions, soils will be stabilized as soon as practicable.

p) The construction right-of-way will be inspected periodically during and after construction until final restoration is complete. Erosion control or restoration features will be repaired as needed in a timely manner until permanent revegetation is successful.

4.2 Village of Whitehall

Policy 5.1 *- Protect significant coastal fish and wildlife habitats.*

The Applicants will work closely with NYSDOS, NYSDEC, the New York Natural Heritage Program (NYNHP) and local municipalities to avoid or minimize disturbance to these areas.

Additional information was provided in Exhibit 4 of the Article VII Application. Also, see above response to State Policy 7.

4.3 Town of Schodack and Village of Castleton-on-the-Hudson

Policy 7 *- The Town of Schodack and Village of Castleton-on-the-Hudson note that habitat protection is vital to ensuring the survival of fish and wildlife populations. The town has*

adopted the Significant Fish and Wildlife habitat "habitat impairment test" and defines "habitat destruction", "significant impairment" and "tolerance range."

See above response to State Policy 7.

Policy 7A - *The Papscanee Marsh and Creek habitat shall be protected, preserved and restored where practicable so as to maintain its viability as a habitat.*

Papscanee Marsh and Creek are listed as a Significant Fish and Wildlife Habitat with a significance rating of 48. This area will be avoided by the Project.

The Project will not destroy or cause significant impairment to any habitats in the Town of Schodack or Village of Castleton-on-the-Hudson.

See above response to State Policy 7.

Policy 7B - *The Schodack and Houghtaling Islands and Schodack Creek habitat shall be protected, preserved and restored where practicable so as to maintain its viability as a habitat.*

The Schodack and Houghtaling Islands and Schodack Creek habitat are listed as Significant Fish and Wildlife Habitat by the NYSDOS, with a significance rating of 77. A portion of this 1,800 acre parcel is an undeveloped state park.

This area will be avoided by the Project.

4.4 Village of Athens

All of the Village of Athens' policies were reviewed and found to be consistent with the assessment of State Policies described above.

4.5 Village of Tivoli

Policy 7 - *Significant coastal fish and wildlife habitats will be protected, preserved, and where practical, restored so as to maintain their viability as habitats.*

See above response to State Policy 7.

Sections of North and South Tivoli Bay are within the Village of Tivoli. This is a Significant Coastal Fish and Wildlife Habitat recognized by DOS with a significance rating of 162.

This area will be avoided by the Project.

Policy 7A - *The locally significant habitats of Stony Creek and the Hudson River along Tivoli's waterfront will be protected, preserved and improved. The Hudson River Bluffs, Tivoli Bay, and Stony Creek should be protected from overdevelopment.*

This Project will avoid Tivoli Bay and Stony Creek and will not induce development in the area.

4.6 Village of Saugerties

Policy 7 - *Significant coastal fish and wildlife habitats will be protected, preserved, and where practical, restored so as to maintain their viability as habitats.*

See above response to State Policy 7.

The Esopus Estuary has been designated a Significant Coastal Fish and Wildlife Habitat by the NYSDOS. It has a significance rating of 98. The boundary of the Esopus Estuary extends across the Hudson River. It is impossible to avoid the boundary area of the Esopus Estuary.

The proposed cable route will be sited on the east side of the Hudson River and will minimize impacts and would not result in a direct loss of habitat.

Policy 44A - *Preserve wetlands from development and pollution and encourage wildlife activity through enforcement of existing state regulations, establishment of wetland zones and undertaking measures to eliminate pollution sources.*

This is a local policy related to NYSDOS Policy 44.

See above response to Town of Essex Policy 6.3.

4.7 Town of Red Hook

Policy 7 - *Significant Coastal Fish and Wildlife Habitats will be protected, preserved, and where practical, restored so as to maintain their viability as habitats.*

See above response to State Policy 7.

Policy 7A - *Protect the areas identified as significant habitat areas by the NYSDOS as well as the creeks, kills, wetland and cove areas draining into and adjacent to the Hudson River from alteration and/or pollutant discharge by residential, commercial, agricultural or industrial uses in order to maintain their viability as habitat areas.*

There are three significant habitats in the Red Hook LWRP area: The Esopus Estuary, the Flats and North and South Tivoli Bays. Impacts to these areas will be avoided or minimized as described in the above response to State Policy 7.

Policy 23A - *Conserve, protect, preserve and, if appropriate, promote the adaptive reuse of places, sites, structures, views and features in the coastal area of the Town of Red Hook of special historic, cultural or archaeological significance or which by reason of association with notable people or events, or of the antiquity or uniqueness of architectural and landscape design particular significance to the heritage of the town.*

The construction of the buried cables will have no adverse impact on these resources.

Policy 38A - *Work to re-establish and maintain the Saw Killwater quality surveillance program.*

This local policy is not applicable as the Project is not in proximity to this resource nor will it affect it.

4.8 City of Kingston

Policy 7 - *Significant coastal fish and wildlife habitats will be protected, preserved, and where practical, restored so as to maintain their viability as habitats.*

See above response to State Policy 7.

Policy 7A - *The Rondout Creek habitat shall be protected, preserved and, where practical, restored so as to maintain its viability as a habitat.*

Rondout Creek is a Significant Coastal Fish and Wildlife Habitat recognized by NYSDOS with a significance value of 70.

This SCFWH will be avoided by the Project.

Policy 7B - *The locally important habitat at Kingston Point Park, also known as K.E.4, shall be protected, preserved and, where practicable, restored so as to maintain its viability as a habitat.*

This mudflat freshwater wetland area will be avoided by the Project.

Another Significant Coastal Fish and Wildlife Habitat recognized by NYSDOS is the Kingston Deep Water habitat with a significance rating of 110. This six mile long habitat extends from the City of Kingston to Rhinecliff and varies in depth from 30 to 50 feet.

A detailed discussion of potential impacts and mitigation for the Kingston Deepwater habitat is provided in Exhibit 4 of the March 2010 Article VII Application. Cable installation is not expected to result in a change in overall depths in the Kingston Deepwater Habitat, and sediment deposition beyond the trench is expected to be negligible. BMPs will be employed during cable installation to mitigate any potential adverse impacts.

See above response to State Policy 7.

4.9 Town of Rhinebeck

Policy 7 *- Significant coastal fish and wildlife habitats will be protected, preserved and, where practical, restored so as to maintain their viability as habitats.*

See above response to State Policy 7.

Policy 7A *- The Vanderburgh Cove and Shallows Habitat shall be protected, preserved and, where practical, restored so as to maintain its viability as a habitat.*

Vanderburgh Cove and Shallows Habitat is a Significant Coastal Fish and Wildlife Habitat recognized by NYSDOS with a significance rating of 20.

These areas will be avoided by the Project.

Policy 7B *- The Kingston Deepwater Habitat shall be protected, preserved and, where practical, restored so as to maintain its viability as a habitat.*

The Kingston Deep Water Habitat is recognized by NYSDOS and has a significance rating of 110. This six mile long habitat extends from the City of Kingston to Rhinecliff and varies in depth from 30 to 50 feet.

A detailed discussion of potential impacts and mitigation for the Kingston Deepwater habitat is provided in Exhibit 4 of the Article VII Application. Cable installation is not expected to result in a change in overall depths in the Kingston Deepwater Habitat, and sediment deposition beyond the trench is expected to be negligible. BMPs will be employed during cable installation to mitigate any potential adverse impacts.

Policy 7C *- The Flats Habitat shall be protected, preserved and where practical, restored so as to maintain its viability as a habitat.*

The Flats Habitat is a Significant Coastal Fish and Wildlife Habitat recognized by NYSDOS with a significance rating of 118. This area is a four and one half mile long ridge running down the middle of the Hudson River. It is less than 10 feet deep at mean low water. The navigational channel runs down the Hudson River to the west of this area.

The Project is not expected to cross this SCFWH.

Policy 7D *- Support efforts to protect and enhance the natural resources of Ferncliff Forest, Snyder Swamp and the Mudder Kill.*

These areas will not be affected by this Project.

Policy 7E *- Protect the creeks, freshwater tidal wetlands, and freshwater tidal cove areas draining into and adjacent to the Hudson River from alteration and/or pollutant discharge by residential, commercial, agricultural or industrial uses.*

These areas will not be affected by this Project.

4.10 Town of Esopus

Policy 7 *- Significant coastal fish and wildlife habitats will be protected, preserved, and where practical, restored so as to maintain their viability as habitats.*

See above response to State Policy 7.

Policy 7A *- The locally important Kingston and Poughkeepsie deepwater habitats shall be protected and preserved so as to maintain their viability as habitats.*

Since this LWRP was adopted, these two areas have been recognized as Significant Coastal Fish and Wildlife Habitats.

The Kingston Deep Water Habitat is recognized by NYSDOS and has a significance rating of 110. This six mile long habitat extends from the City of Kingston to Rhinecliff and varies in depth from 30 to 50 feet.

The Poughkeepsie Deep Water Habitat is recognized by NYSDOS and has a significance rating of 110. This habitat extends 14 miles from the Village of West Park to the Hamlet of Marlboro. Depths range from 30 to 50 feet with one area, Crum Elbow, having depths exceeding 125 feet.

A detailed discussion of potential impacts and mitigation for these SCFWHs is provided in Exhibit 4 of the Article VII Application. Cable installation is not expected to result in a change in overall depths in either the Kingston or Poughkeepsie Deep Water Habitats, and sediment deposition beyond the trench is expected to be negligible. BMPs will be employed during cable installation to minimize any potential adverse impacts.

Policy 7B *- The locally important Rondout Creek Habitat shall be protected and preserved so as to maintain its viability as habitat.*

Since the adoption of this LWRP, the Rondout Creek has been designated a Significant Coastal Fish and Wildlife Habitat by NYSDOS with a significance value of 70.

This significant habitat will be avoided by the Project.

Policy 7C - *The locally important Esopus Meadows Habitat shall be protected and preserved so as to maintain its viability as habitat.*

Since the adoption of this LWRP, Esopus Meadows Habitat has been recognized by the NYSDOS as a Significant Coastal Fish and Wildlife Habitat with a significance rating of 71. Esopus Meadows is a shoal of approximately 350 acres.

This area will be avoided by the Project.

Policy 7D - *The other identified local habitat "the map turtle basking rocks" shall also be protected from the adverse impacts of use or development.*

This area will be avoided by the Project.

4.11 Town of Poughkeepsie

Policy 7 - *Significant coastal fish and wildlife habitats will be protected, preserved and, where practical, restored so as to maintain their viability as habitats.*

See above response to State Policy 7.

There are two Significant Coastal Fish and Wildlife Habitats in the Town of Poughkeepsie, the Poughkeepsie Deepwater Habitat and Wappinger Creek.

The Poughkeepsie Deep Water Habitat is recognized by NYSDOS and has a significance rating of 110. This habitat extends 14 miles from the Village of West Park to the Hamlet of Marlboro. Depths range from 30 to 50 feet with one area, Crum Elbow, having depths exceeding 125 feet.

Wappinger Creek is on the east side of the Hudson River between Poughkeepsie and Wappinger. It has a significance rating of 54.

This area will be avoided by the Project.

4.12 Town of Lloyd

Policy 7 - *Significant coastal fish and wildlife habitats will be protected, preserved and, where practical, restored so as to maintain their viability as habitats.*

See above response to State Policy 7.

Policy 7A - *To preserve and protect the viability of the Poughkeepsie Deep Water Habitat and the Shortnose Sturgeon, which is considered an endangered species.*

The Poughkeepsie Deep Water Habitat is recognized by NYSDOS and has a significance rating of 110. This habitat extends 14 miles from the Village of West Park to the Hamlet

of Marlboro. Depths range from 30 to 50 feet with one area, Crum Elbow, having depths exceeding 125 feet.

A detailed discussion of potential impacts and mitigation for these SCFWHs is provided in Exhibit 4 of the Article VII Application. Cable installation is not expected to result in a change in overall depths in the Poughkeepsie Deep Water Habitat, and sediment deposition beyond the trench is expected to be negligible. BMPs will be employed during cable installation to minimize any potential adverse impacts. Potential impacts and mitigation for shortnose sturgeon is described in the Article VII Application.

Policy 7B - *Protect, preserve and enhance the wooded bluffs of the Hudson River shore, which is habitat to the bald eagle (an endangered species), the osprey (threatened) and peregrine falcon as well as many other bird species.*

The Project will avoid these areas.

Policy 8A - *Protect fish and wildlife resources in the waterfront area from any possible hazardous wastes and other pollutants which may be present anywhere within the waterfront area, including the Costantino Landfill.*

This Project is designed to avoid disturbance of any hazardous wastes or other pollutants which may be present anywhere within the waterfront area, it will not generate hazardous wastes, and it incorporates protections to avoid introduction of other pollutants to that area.

Policy 18A - *Safeguard the vital economic, social and environmental interests of the Town of Lloyd and its citizens in the evaluation of any proposal for an additional Hudson River crossing - either a new bridge or second deck - which would impact the town*

This local policy is not applicable to this Project.

Policy 35A - *Spoils from dredging of the navigational channel of the Hudson River, or of any areas of the river or the coastline which may require it, shall not be disposed of in the Poughkeepsie Deepwater Habitat.*

If any dredge spoil results from this Project, it will be disposed of in accordance with all state, federal and local requirements, and will not be disposed of in the Poughkeepsie Deepwater Habitat.

4.13 City of Beacon

Policy 7A - *The Fishkill Creek Estuary and marsh shall be protected, preserved, and where practical, restored so as to maintain its viability as a habitat. This Significant Coastal Fish and Wildlife Habitat has a significance rating of 54 and consists of an 80 acre estuary. (West Point North map)*

This area will be avoided by the Project.

Policy 8A - *Prohibit the discharge of untreated effluent and pollutants from commercial and industrial facilities along Fishkill Creek.*

This local policy does not apply to this Project.

Policy 23A - *Encourage the restoration and adaptive reuse of large historic estates, such as the mill buildings on Fishkill Creek.*

The Project does not involve the opportunity to restore or reuse large historic estates.

Policy 35A - *Dredging shall not occur during fish spawning season and will not be carried out without a U. S. Army Corps of Engineers Section 10 and/or 404 permit, and /or DEC Part 608 and 663 permits.*

The Project will abide by specific conditions of issued USACE Section 10/404 and/or DEC Part 608 and 663 permits, which include fish spawning timing issues. In addition, construction activity will be timed to minimize impacts to fish spawning as described in Exhibit 4 of the Article VII Application.

Policy 35B - *Spoils should not be deposited in wetlands or significant fish and wildlife habitats as identified in the LWRP inventory.*

Dredge spoil as a result of this Project will be disposed of in accordance with all state, federal and local requirements.

Policy 35C - *Reclamation of spoils sites, including landscaping, shall be conducted where it is practical to do so.*

This Project does not involve the use of spoil sites, so reclamation is not appropriate.

Policy 35D - *Groundwater contamination shall be avoided.*

The installation of the cables along the bottom of the Hudson River is designed to avoid groundwater contamination.

Policy 35E - *Spoils site design will incorporate considerations for natural features, viewsheds, and shall, where feasible, conform to existing land form.*

Spoil site development is not a component of this Project; therefore, this policy does not apply.

Policy 35F - *No deposition shall occur without testing of sample soils for toxicity.*

If dredging occurs within the limits of Beacon, dredge spoil will most likely be removed for proper disposal rather than deposited back in the trench.

Policy 35G - *Toxic or hazardous dredge spoils shall not be deposited within the waterfront boundary. The potential of worked out mines as dredge spoil sites will be investigated.*

Any dredge spoil generated, as a result of this Project will be disposed of in accordance with all state, federal and local requirements.

Policy 44A - *Preserve and protect the Fishkill Creek Marsh to maintain its many intrinsic values.*

Fish Creek Marsh Significant Coastal Fish and Wildlife Habitat has a significance rating of 54 and consists of an 80 acre estuary.

This area will be avoided by the Project.

4.14 City of Newburgh

Policy 7A - *Activities that would adversely affect fish resident in or migrating through waters adjacent to Newburgh will be avoided.*

The Applicants will comply with this local policy by avoiding, minimizing or mitigating impacts to fisheries, as described in the above response to State Policy 7 and in Exhibit 4 of the Article VII Application.

Policy 8A - *New developments or expansion of existing facilities will not be permitted if such facilities introduce hazardous wastes or other pollutants into the environment or if they are unable to acquire the necessary state, federal, and local permits.*

This Project does not anticipate introducing hazardous wastes or other pollutants into the environment since the cables do not contain these substances and cables are the only project feature proposed for placement within the City of Newburgh.

Policy 18A - *Maintain and improve existing low and moderate income housing.*

This local policy is not applicable to this Project.

Policy 23A - *No changes in any exterior architectural feature, including, but not limited to, construction, alteration, restoration, removal, demolition, or painting, shall be made to identified resources except as hereinafter provided.*

This local policy is not applicable to this Project.

Policy 44 - *Preserve and protect tidal and freshwater wetlands and preserve the benefits derived from these areas.*

In addition to generally avoiding most tidal wetland habitats as described in Exhibit 4 of the Article VII Application, this Project will specifically avoid Quaissaick Creek tidal wetland, which is noted as locally important.

4.15 City of Peekskill

Policy 7A - *Fish and wildlife habitats of local importance are of value to the city and its natural resource inventory and shall be protected, preserved and, where practical, restored so as to maintain their viability.*

This local policy refers to Camp Smith Marsh, Annsville Creek, Peekskill Hollow Brook and the McGregory Brook, as well as Nose and Bald Mountains north of the city.

These habitats of local significance are not in proximity to the Project and will not be impacted by this Project.

4.16 Town of Stony Point

Policy 7A *- The Iona Island Marsh shall be protected, preserved and, where practical, restored so as to maintain its viability as a habitat.*

The Iona Island Marsh has a significance value of 71. It is comprised of approximately 270 acres of freshwater, tidal and brackish wetlands.

This area is along the west side of the Hudson River and will be avoided by this Project.

Policy 7B - *The Haverstraw Bay habitat shall be protected, preserved and, where practical, restored so as to maintain its viability as a habitat.*

Haverstraw Bay is a significant habitat with a significance value of 166. The bay encompasses a six mile stretch of the Hudson River from Stony Point to Croton Point. Average depth at mean low water is approximately 15 feet. Salinity in the area varies by year, but Haverstraw Bay is an important habitat for fish nurseries. The navigational channel is located on the west side of the bay and maintained at approximately 35 feet in depth.

The Applicants will move its cable into the previously and periodically disturbed side slope of the navigational channel so as to minimize impacts to Haverstraw Bay.

Policy 7C *- The Hudson River Mile 44 - 56 habitat shall be protected, preserved and, where practical, restored so as to maintain its viability as a habitat.*

This significant habitat runs from Cornwall Bay to Peekskill Bay. It is a 12 mile long deep water habitat reaching depths of up to 200 feet. The bay has strong currents and a rocky substrate. It is considered the southernmost extent of freshwater in the Hudson River and is an important spawning area.

Detailed information on potential impacts and mitigation are provided in Section 4.8.4.3 of the Application. Cable installation is not expected to result in a change in overall depths, and sediment deposition beyond the trench is expected to be negligible. BMPs will be employed during cable installation to minimize any potential adverse impacts.

Policy 23A *- Stabilize and revitalize the historic residences and neighborhoods on River Road, Munn Avenue and Grassy Point Road.*

This Project is not located in or near these areas and will have no impact on these resources, and so this policy is not applicable.

4.17 Village of Haverstraw

Policy 7A *- The Haverstraw Bay Habitat shall be protected, preserved and where practical, restored so as to maintain its viability as habitat.*

Haverstraw Bay is a significant habitat with a significance value of 166. The bay encompasses a six mile stretch of the Hudson River from Stony Point to Croton Point. Average depth at mean low water is approximately 15 feet. Salinity in the area varies by year, but Haverstraw Bay is an important habitat for fish nurseries. The navigational channel is located on the west side of the bay and is maintained at approximately 35 feet in depth.

The Applicants will move its cable into the previously and periodically disturbed side slope of the navigational channel so as to minimize impacts to Haverstraw Bay.

Policy 8A *- Control the introduction of new industries or technology which could increase the presence of hazardous materials within the Haverstraw coastal area.*

This Project's scope within the Village boundaries only involves the installation of HVDC cables, which do not contain any hazardous materials.

Policy 8B *- Encourage existing industrial productions or storage facilities to utilize the most current technologies available to minimize the potential threat from hazardous wastes or pollutants to the surrounding environment.*

This Project does not involve industrial or storage facilities.

Policy 23A - *Stabilize and revitalize the historic residences and neighborhoods on First Street and Hudson Avenue as well as other selected areas.*

This Project is not located in or near these areas and will have no impact on these resources; therefore, this policy is not applicable.

Policy 23B - *Preserve and protect underwater historic, archaeological and cultural resources in Haverstraw Bay.*

The Applicants proposes to place the underwater transmission cables within the existing navigational channel in Haverstraw Bay, which should minimize any potential impacts to underwater resources since these areas have been previously disturbed. Exhibit 4 of the Article VII Application provides a detailed discussion of underwater historic, archaeological and cultural resources in the vicinity of the Project.

4.18 Village of Croton on the Hudson

Policy 7A - *The quality of the Croton River and Bay Significant Fish and Wildlife Habitat and Haverstraw Bay Significant Fish and Wildlife Habitat shall be protected and improved for conservation, economic, aesthetic, recreational, and other public uses and values. Its resources shall be protected from the threat of pollution, misuse, and mismanagement.*

Croton River and Bay is a significant habitat with a significance value of 24. The bay is comprised of approximately 1,200 acres of submerged aquatic vegetation and mudflats and is located at the south eastern edge of Haverstraw Bay. Most of the Croton River has been diverted for public water supplies.

This area will be avoided by the Project.

Haverstraw Bay is a significant habitat with a significance value of 166. The bay encompasses a six mile stretch of the Hudson River from Stony Point to Croton Point. Average depth at mean low water is approximately 15 feet. Salinity in the area varies by year, but Haverstraw Bay is an important habitat for fish nurseries. The navigational channel is located on the west side of the bay and maintained at approximately 35 feet in depth.

The Applicants will move its cable into the previously and periodically disturbed side slope of the navigational channel so as to minimize impacts to Haverstraw Bay.

Policy 7B - *Materials that can degrade water quality and degrade or destroy the ecological system of the Croton River and Bay Significant Fish and Wildlife Habitat and the Haverstraw Bay Significant Fish and Wildlife Habitat shall not be disposed of or allowed to drain in or on land within the area of influence in the Significant Fish and Wildlife Habitats.*

No materials will be disposed of or allowed to drain into the Croton River and Bay SCFWH or the Haverstraw Bay SCFWH. The Project will be constructed with a Spill

Prevention, Control, and Countermeasure (SPCC) plan, which will be provided in the Environmental Management and Control Plans developed for in-water construction.

Policy 7C - *Storage of materials that can degrade water quality and degrade or destroy the ecological system of the Croton River and Bay Significant Fish and Wildlife Habitat or Haverstraw Bay Significant Fish and Wildlife Habitat shall not be permitted within the area of influence of the habitat unless best available technology is used to prevent adverse impacts to the habitat.*

This Project will not require the storage of materials that could degrade water quality or degrade or destroy the ecological system of the Croton River and Haverstraw Bay SCFWHs.

Policy 7D - *Restoration of degraded ecological elements of the Croton River and Bay and Haverstraw Bay Significant Fish and Wildlife Habitat and shorelands shall be included in any programs for cleanup of any adjacent toxic and hazardous waste sites.*

This local policy does not apply to the Project.

Policy 7E - *Runoff from public and private parking lots and from storm sewer overflows shall be effectively channeled so as to prevent oil, grease, and other contaminants from polluting surface and ground water and impact the Significant Fish and Wildlife Habitat.*

This local policy does not apply to the Project.

Policy 7F - *Construction activity of any kind must not cause a measurable increase in erosion or flooding at the site of such activity, or impact other locations. Construction activity shall be timed so that spawning of anadromous fish species and shellfish will not be adversely affected.*

Sediment and erosion control BMPs will be employed to minimize impacts outside of the construction area from erosion or stormwater. The buried cables will not measurably alter the riverbed elevation, thereby avoiding any possibility of increasing flooding or erosion. Construction activity will be timed to minimize impacts to fish spawning as described in Exhibit 4 of the Article VII Application.

Policy 7G - *Such activities must not cause degradation of water quality or impact identified Significant Fish and Wildlife Habitats.*

This Project will be constructed with BMPs in place that will minimize the potential for water quality degradation, other than localized and temporary increases in suspended sediment concentrations around the water jetting device. Impacts to identified SCFWHs have either been avoided through cable routing or will be minimized through the selection of jetting as the preferred burial method (Exhibit 4 of the Article VII Application).

Policy 44A *- Wetlands, waterbodies and watercourses shall be protected by preventing damage from erosion or siltation, minimizing disturbance, preserving natural habitats and protecting against flood and pollution.*

The Applicants expect to avoid any direct impacts to wetlands along the underwater portions of the transmission cable corridor (Exhibit 4 of the Article VII Application) and will minimize siltation and other disturbances associated with the Project. The Project Description of this Joint Application provides additional details on the proposed construction methods, which allow for rapid cable laying and burial with the least sediment disturbing methods possible.

4.19 Village of Ossining

Policy 7A *- The designated coastal habitat at the Croton River and Bay shall be protected, preserved and where practicable, restored so as to maintain its viability as habitat.*

Croton River and Bay is a significant habitat with a significance value of 24. The bay is comprised of approximately 1,200 acres of submerged aquatic vegetation and mudflats and is located at the southeastern edge of Haverstraw Bay. Most of the Croton River has been diverted for public water supplies.

This Project will avoid Croton Bay significant habitat.

Policy 7B *- The locally important coastal wildlife habitat at Crawbuckie Nature Area shall be protected and preserved so as to maintain its viability as a habitat.*

The Crawbuckie Nature Area is east of the Croton Bay significant habitat and will be avoided by this Project.

4.20 Village of Nyack

Policy 7A *- Protect the physical characteristics of the Hudson River along Nyack that support the varied fish populations found there. Nyack's LWRP notes that numerous species of fish are found in this area and implemented this local policy to protect them.*

This Project will not alter the physical characteristics of the Hudson River, other than generating minor and temporary increases in suspended sediments and a linear trench of fluidized sediments that will require some time to re-compact (Exhibit 4 of the Article VII Application).

4.21 Village of Sleepy Hollow

Policy 7A *- Fremont Lake and associated wetlands/watercourses and adjacent upland areas shall be protected, preserved, and, where practical, restored so as to maintain its viability as a locally significant habitat.*

Fremont Lake and its associated wetlands/watercourses and adjacent upland areas are not near nor will they be affected by this Project.

Policy 7B *- The Philipsburg Manor and Devries Field wetland/watercourse areas of the Pocantico River shall be protected, preserved, and, where practical, restored so as to maintain its viability as a locally significant habitat.*

These areas are not near nor will they be affected by this Project.

Policy 7C *- The Upper Pocantico River and Gorey Brook watercourse areas shall be protected, preserved, and, where practical, restored so as to maintain its viability as a locally significant habitat.*

These areas are not near nor will they be affected by this Project.

Policy 7D *- The Hudson River immediately adjacent and within 1000 feet of the village's shoreline shall be protected, preserved, and, where practical, restored so as to maintain its viability as a locally significant habitat.*

Installation of the cables will either occur at a distance of greater than 1,000 feet from the village's shoreline at this location or will involve only temporary disturbance to the riverbed, which will return to its pre-installation condition over time.

Policy 7E *- The lands in state ownership associated with the Rockefeller State Park Preserve and Old Croton Aqueduct Trail shall be protected, preserved, and, where practical, restored so as to maintain its viability as a locally significant habitat.*

These areas are not near nor will they be affected by this Project.

Policy 8A *- Control the introduction of new industries or technology which could increase the presence of hazardous materials within the Sleepy Hollow waterfront area.*

This Project's scope within the Village boundaries only involves the installation of HVDC cables, which do not contain any hazardous materials.

Policy 8B *- Encourage existing industrial production or storage facilities to utilize the most current technologies available to minimize the potential threat from hazardous wastes or pollutants to the surrounding environment.*

This Project does not involve industrial or storage facilities.

Policy 18A - *Protect the vital economic, social, cultural, and environmental interests of the village in the evaluation of any proposal for new roads, road widening or infrastructure.*

This local environmental policy is not applicable to this Project.

Policy 18B - *To protect the social interests of the village, proposed actions must give full consideration to the impacts of such actions on the community and cultural resources of the village and the quality of life such resources support.*

With the cables being buried in the bottom of the Hudson River, this Project will not impact the cultural resources of the village or the quality of life such resources support.

Policy 18C - *To protect the environmental interests of the village, proposed actions must give full consideration to the impacts of such actions on valuable and sensitive natural resources of the village.*

This Project will have negligible to minor impacts to certain resources (e.g. water quality, fisheries, benthos) of the Hudson River due to the temporary nature of the cable installation disturbance to the riverbed. Since the native sediments backfill the trench, the disturbed area represents a small fraction of the total area of the riverbed, and the increased suspended sediments are localized and disperse quickly so the impacted resources will return to its pre-installation condition quickly.

Policy 23A - *Preserve and enhance the structures, areas, or sites within the Village of Sleepy Hollow that are currently listed on the state and/or national register of historic places.*

This local policy does not pertain to the Project, since none of these resources will be altered or disturbed during cable installation.

Policy 23B - *Preserve and enhance the structures, areas, or sites within the Village of Sleepy Hollow that have been identified as being eligible for listing on the state and/or national register of historic places.*

This local policy does not pertain to the Project, since none of these resources will be altered or disturbed during cable installation.

Policy 23C - *Encourage the restoration and adaptive reuse of historic buildings such as the Philipse Manor Train Station.*

This local policy does not pertain to the Project, since none of these resources will be altered or disturbed during cable installation.

4.22 Village of Piermont

Policy 7A - *Protect the Piermont Marsh south of the pier and the Sparkill Creek by severely restricting it to passive recreational uses.*

Piermont Marsh is a Significant Coastal Fish and Wildlife Habitat with a significance value of 74. It is a 725 acre tidal wetland located along the west side of the Hudson River. The Sparkill Creek empties into this wetland area.

This area will be avoided by the Project.

Policy 8A - *The intentional dumping of oil or other pollutants into waterways and catch basins can be harmful to fish and wildlife resources, and such actions will be prosecuted.*

The Applicants and/or its contractors will not intentionally dump oil or other pollutants into the Hudson River.

Policy 8B - *The Rockland County sewer outfall line should be extended to deeper, faster flowing water. The outfall line should be rebuilt to maintain its integrity.*

This local policy is not applicable to this Project since the Project does not involve activities which would require the use of the Rockland County sewer or otherwise warrant the Applicants' involvement in this endeavor.

Policy 18A - *New development shall be designed to minimize impact on the availability of affordable housing and on the existing character and cultural resources of Piermont.*

The buried cables of this Project are consistent with this local policy.

Policy 23A - *The architectural review board shall review applications for building permits involving structures identified as being architecturally significant or structures adjacent to buildings or sites identified as historically or architecturally significant.*

This local policy is not applicable to this Project.

Policy 23B - *Place monuments and markers on structures and at sites important to the history of the Village of Piermont.*

This local policy is not applicable to this Project.

Policy 44A - *The Piermont Marsh should be protected from pollutants that would adversely affect the ecology of the marsh.*

Piermont Marsh will be avoided by this Project and any indirect effects will be minimized by the construction methods selected and the environmental protection

measures to be employed during construction, such as the implementation of SPCC plans for vessels installing the cables.

4.23 Village of Dobbs Ferry

The numbering of the policies for Dobbs Ferry differ from the numbering of these policies by NYSDOS. All policies have been reviewed and it has been determined that this Project will be consistent with the policies that might impact it. Specific policies are as follows:

Policy 6.1 - *Protect locally significant coastal fish and wildlife habitats.*

See above response to State Policy 7.

This Project will avoid or minimize impacts to SCFWHs to the greatest extent possible, both by the location of the cable corridor within the deeper waters of the Hudson River and the use of water jetting to bury the cable, which allows for faster burial than conventional dredging so that the duration and extent of suspended sediments are reduced. This installation method also allows for the initiation of riverbed recovery to occur sooner.

Policy 6.2 - *Support the restoration of Significant Coastal Fish and Wildlife Habitats wherever possible so as to foster their continued existence as natural, self-regulating systems.*

While not directly related to this Project, this Project will not interfere with or prevent restoration activities by others.

Policy 10.5 - *Promote the efficient management of surface waters and underwater lands.*

This Project will conform to this policy because of the selected location and proposed construction methods are designed to avoid more ecologically sensitive areas and minimize impacts to those lands and waters that cannot be avoided, as compared to other types of cable installation procedures.

APPENDIX C

COPY OF 401 WATER QUALITY CERTIFICATE APPLICATION

BEFORE THE
PUBLIC SERVICE COMMISSION
STATE OF NEW YORK

Application of Champlain Hudson Power Express, Inc. for a Certificate of Environmental Compatibility and Public Need Pursuant to Article VII of the Public Service Law	)	Case No. 10-T-0139

REQUEST OF CHAMPLAIN HUDSON POWER EXPRESS, INC.
FOR AN EARLY PROCEDURAL CONFERENCE
AND FOR ACCEPTANCE OF CORRECTIONS TO ITS APPLICATION

Champlain Hudson Power Express, Inc. ("CHPEI") submits this request for an Early Procedural Conference in this proceeding and for Acceptance of Certain Minor Corrections to its Application pursuant to Rule 3.5 of the Commission's Rules of Procedure, 16 N.Y.C.R.R. § 3.5 (2009).

INTRODUCTION AND BACKGROUND

On March 30, 2010, CHPEI filed with the Commission its Application For Certificate Of Environmental Compatibility And Public Need ("the Application"). In the Application, CHPEI described its proposal to construct a High Voltage Direct Current ("HVDC") system capable of delivering up to 1,000 MW of renewable electric power from Canada and upstate New York to New York City and an additional 1,000 MW of such power to Bridgeport, Connecticut ("the Project"). To the maximum extent

practicable, these new facilities will be located either underground or under the waters of Lake Champlain, the Champlain Canal and the Hudson River to minimize the impacts of these facilities on adjoining land owners and the general public.

In the Application, CHPEI noted that certain information required by the Commission's rules was not yet available and would be submitted by July 1, 2010. CHPEI also requested the assistance of the Commission and the parties to expedite Article VII review of the Project so that CHPEI would be able to meet the September 30, 2011 start of construction deadline required for CHPEI to qualify for a $2.3 billion dollar loan guarantee from the United States Department of Energy (DOE) under the American Recovery and Reinvestment Act of 2009 ("ARRA").

Since that filing, the Commission has assigned Administrative Law Judges Michelle Phillips and Kevin Casutto to preside over this proceeding, and interventions have been filed by a number of parties, including the Adirondack Park Agency, the Consolidated Edison Company of New York, Inc., the New York State Department of Agriculture and Markets, the New York Power Authority, the Natural Resources Defense Counsel, Riverkeeper, Indeck Energy Services, Inc., the New York State Department of Environmental Conservation, the City of Yonkers, New York, the County of Westchester, New York, Central Hudson Gas & Electric Corporation, and the Independent Power Producers of new York, Inc.

On April 30, 2010, the Secretary of the Commission issued a letter identifying six additional deficiencies in the Application that must be remedied before the

Application is complete. In addition, the Secretary's letter also set out 83 additional questions concerning the Application.

SUMMARY OF POSITION

CHPEI respectfully requests that Your Honors schedule an early procedural conference in this proceeding some time during the week of May 24 to May 28, 2010. Although CHPEI's Application will not be completed until it makes its supplemental filing on July 1, 2010, there are a number of important issues which the parties can address at an early procedural conference, including: (1) establishment of a procedural schedule; (2) establishment of procedures for intervenor funding; (3) determination of the libraries to which copies of the Application should be provided in accordance with the Secretary's letter of April 30, 2010; (4) establishment of procedures to govern discovery; and (5) establishment of an electronic service list. In addition, CHPEI further requests that Your Honors accept the three corrections to CHPEI's Application discussed below.

ANALYSIS

I. YOUR HONORS SHOULD ESTABLISH AN EARLY PROCEDURAL CONFERENCE IN THIS CASE

A. There Are A Number Of Important Issues That Should Be Addressed At An Early Procedural Conference

As previously noted, there are number of important issues that can and should be addressed at an early procedural conference. These issues include, but may not be limited to, the following:

1. An early procedural conference is needed to establish a procedural schedule for this case

This Article VII proceeding differs from most if not all other Article VII proceedings due to the requirements of the DOE loan guarantee. While that program offers the benefit to New York State and to the Project of a $2.3 billion loan guarantee, it imposes an extremely aggressive September 30, 2011 start of construction requirement on the Project. Careful planning will be required to achieve this milestone requirement while preserving the rights of all parties. To that end, CHPEI has developed a proposed procedural schedule, which is annexed to this Request as Attachment 1. If adopted by Your Honors and followed by the parties, this schedule will provide for a full review of the Application in the limited time available under the DOE loan guarantee program.

2. An early procedural conference is required to establish procedures for intervenor funding

This proceeding is also unique in that it is one of the first Article VII proceedings to come before the Commission since the adoption of PSL § 122(5) providing for intervenor funding in Article VII proceedings. While the Commission has issued proposed rules to implement this new statutory authority, those rules are not yet in effect.[1] Accordingly, CHPEI believes that Your Honors must establish your own procedures for intervenor funding to apply in this proceeding, at least until the Commission's regulations become effective.

CHPEI believes that any intervenor funding procedures adopted in this proceeding should generally be based to the maximum extent possible on the new regulations proposed by the Commission but not yet in effect. The only exception to the Commission's rules that CHPEI would propose is the establishment of a date for its payment of the $450,000 in intervenor funding required in this case, since the date for such payments under the Commission's proposed regulations passed before those draft regulations were issued by the Commission. CHPEI stands ready and willing to make this payment within a reasonable period following the issuance of an order adopting procedures to govern intervenor funding in this proceeding.

[1] Case 10-M-0082, *In the Matter of the Rules and Regulations of the Public Service Commission, Contained in 16 NYCRR--Proposed Amendments to Chapter I, Rules of Procedure, Subchapter G, Certificates of Environmental Compatibility and Public Need, Part 85, General Procedures, Subpart 85-2, Procedures with Respect to All Electric Transmission Lines and Fuel Gas Transmission Lines 10 or More Miles Long*, Notice Of Proposed Consensus Rulemaking (Issued March 30, 2010).

3. An early procedural conference is required to address issues raised in the Secretary's letter of April 30, 2010

In her April 30, 2010 letter, the Secretary directed CHPEI to "identify libraries (in consultation with the parties and the assigned Administrative Law Judges) in which [copies of its Application and Supplement] should be placed." An early procedural conference will enable CHPEI, the parties and Your Honors to discuss this important issue and develop a list of libraries to be served.

4. An early procedural conference is required to establish procedures to govern discovery

A further reason to convene an early procedural conference is to establish procedures to govern discovery. Although CHPEI's Application is not yet complete, CHPEI welcomes an early commencement to the discovery process so that the parties may develop a full and complete record within the limited time allowed by the requirements of the DOE loan guarantee program. Accordingly, CHPEI urges Your Honors to make clear that discovery may commence immediately and to establish reasonable procedures to govern the resolution of any discovery disputes that may arise.

5. An early procedural conference is required to establish an electronic service list in this proceeding

Another issue routinely addressed in procedural conferences is the establishment of an electronic service list in lieu of the older forms of document delivery contemplated by the Commission's rules. Such electronic service lists reduce both the cost and the environmental impact of participation in Commission proceedings while providing parties with documents in a quick and reliable manner. In order to waive the provisions of the Commission's rules requiring service of hard copies, however, Your Honors will almost certainly wish to convene an early procedural conference.

B. No Party Will Be Prejudiced By The Establishment Of An Early Procedural Conference

The only conceivable basis for postponing the first procedural conference in this proceeding beyond the week of May 24 to 28, 2010 would be to ensure that all parties had sufficient notice of CHPEI's Application and of the procedural conference itself to participate in a meaningful manner in that procedural conference. This concern does not apply in this case, however, as CHPEI's Application has been publicly available on the Commission's web site since April 30, 2010, and has been the subject of widespread coverage in the press. By the date of any procedural conference convened by Your Honors during the week of May 24 to 28, 2010, almost two months will have elapsed since the filing of CHPEI's Application.

Further evidence that this proceeding is sufficiently mature to make a procedural conference appropriate is provided by the large number of parties that have already

submitted interventions. In light of the large number of sophisticated parties that have already expressed their interest in participating in this proceeding, a procedural conference held sometime during the last week of May would clearly not be premature.

To further ensure that no party or potential party will be surprised by this request, CHPEI is serving this Request on both the official service list for this proceeding established by the Commission's Secretary and those parties required to be served with a copy of the Application pursuant to section 85-2.10 of the Commission's Procedural Rules, 16 N.Y.C.R.R. § 85-2.10 (2009).

II. YOUR HONORS SHOULD ACCEPT THE FOLLOWING CORRECTIONS TO CHPEI's APPLICATION

CHPEI respectfully requests that Your Honors accept the following three corrections to CHPEI's Application:

1. The conclusion to the Application erroneously contained certain language that was deleted from the body of the Application and should have been removed from the Conclusion as well. A revised and corrected version of page 15 of the Application is annexed to this Request as Attachment 2. This revised page 15 replaces both pages 15 and 16 in the original version of the Application.

2. The second paragraph of Section E-4.3 of Exhibit E-4 Engineering Justification erroneously refers to the DOE commencement of construction date as September 30, 2012. This should be revised to state the correct date of September 30, 2011.

3. CHPEI inadvertently served a copy of its Application on the Town of Beekman rather than on the Town of Beekmantown. Only the latter is adjacent to CHPEI's proposed route. CHPEI subsequently served a copy of its Application on the Town of Beekmantown, which will be reflected in the amended certificate of service required by the Secretary's letter dated April 30, 2010.

CONCLUSION

WHEREFORE, for the above-stated reasons, Champlain Hudson Power Express, Inc. respectfully requests that Your Honors:

1. Establish a procedural conference for the week of May 24 to 28, 2010 to address the matters discussed herein as well as any other matters that may appropriately be addressed at that time; and

2. Accept the corrections to CHPEI's Application described herein.

Respectfully submitted,

George M. Pond
Hiscock & Barclay, LLP
50 Beaver Street
Albany, New York 12207-2830
Telephone: (518) 429-4232
Facsimile: (518) 427-3486

Attorneys for Champlain Hudson Power Express, Inc.

Dated: May 7, 2010

CERTIFICATE OF SERVICE

I hereby certify that I have caused copies of the foregoing Request of Champlain Hudson Power Express, Inc. for an Early Procedural Conference and For Acceptance Of Corrections To Its Application to be served on: (1) all parties entitled to receive a copy of the Application in this proceeding under section 85-2.10 of the Commission's Rules of Procedure; and (2) all parties on the Commission's Official Service List in Case 10-T-0139.

Dated at Albany, New York this 7th day of May, 2010.

_____

Claudia A. McDowell

ATTACHMENT 1

PROPOSED PROCEDURAL SCHEDULE

PROPOSED PROCEDURAL SCHEDULE

Start of Pre-application Consultation	January 27, 2010
Application provided to Secretary (with any motions)[2]	March 23, 2010
Procedural Conference	May 24, 2010
Application considered filed	July 1, 2010
Secretary's letter and notice of pre-hearing conference[3]	July 20, 2010
Submission of requests for funds	August 4, 2010
Pre-hearing Conference	August 5, 2010
Initial award of funds	August 20, 2010
Public Statement Hearings	August 30-September 29, 2010
Alternate Route Identification	September 17, 2010
Formal service of alternatives on Statutory parties (as necessary)	September 30, 2010
Commence Settlement Discussions	October 1, 2010
DPS Staff and Intervenor Direct Cases	November 2, 2010
Conclude Settlement Discussions	December 1, 2010
Rebuttal Cases	December 10, 2010
Evidentiary Hearings	January 4-21, 2011
Site visits	January 24-28, 2011
Initial Briefs	February 15, 2011
Reply Briefs	February 28, 2011
Recommended Decision	XXX, 2011
Briefs on Exception	XXX, 2011

[2] An application proposing an electric transmission line in a National Interest Electric Transmission Corridor "is considered filed on a date set forth in a letter to the applicant from the secretary, namely, the date of receipt of the application and any supplemental information necessary to bring it into compliance with all the [85-2.9] requirements, except any such requirements where the commission has granted permission to submit unavailable information at a future specified date pursuant to Section 85-2.3(c) of this Subpart or which the commission has waived pursuant to Section 85-2.4 of this Subpart".

[3] Depending on how much information is contained in the document provided to the Secretary on March 23, it may be desirable to hold the pre-hearing conference in early May.

Briefs Opposing Exceptions	XXX, 2011
Commission Decision	June 30, 2011
Filing of EM&CP for at least one segment (if applicable)	July 15, 2011
Comments on any EM&CP filing	August 15, 2011
Commission Decision on any EM&CP filing	September 15, 2011

ATTACHMENT 2

REVISED PAGE 15 TO CHPEI APPLICATION

6.5 Water Quality Certificate

Pursuant to PSL § 130 and section 401 of the Federal Water Pollution Control Act,[4] CHPEI respectfully requests that the Commission issue a Water Quality Certificate for the Project.

7.0 CONCLUSION

WHEREFORE, for the above-stated reasons, Champlain Hudson Power Express, Inc. respectfully requests that the Commission:

- Accept this Application for filing; and
- At the conclusion of these proceedings, issue a Certificate of Environmental Compatibility and Public Need for the Project described herein; and
- Grant CHPEI such other authorizations, consents, permissions and approvals as may be necessary or convenient for the construction, operation, and maintenance of the Project, including but not limited to:
    - waiver of those local laws and land use regulations specified in Exhibit 7 pursuant to PSL § 126(1)(f); and
    - issuance of a Water Quality Certification pursuant to Section 401 of the Federal Water Quality Pollution Control Act and PSL § 130.

Respectfully submitted,

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50 Beaver Street
Albany, New York 12207-2830
Telephone: (518) 429-4200
Facsimile: (518) 427-3486

Attorneys for Champlain Hudson Power Express, Inc.

Dated: March 30, 2010

[4] 33 U.S.C. § 1341.

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

October 14, 2010

REVISED NOTICE OF PUBLIC STATEMENT HEARING
CONCERNING THE APPLICATION
OF CHAMPLAIN HUDSON POWER EXPRESS, INC FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED PURSUANT TO ARTICLE VII OF THE PSL FOR THE CONSTRUCTION, OPERATION AND MAINTENANCE OF A 1,000 MW HIGH VOLTAGE DIRECT CURRENT CIRCUIT FROM THE CANADIAN BORDER TO NEW YORK CITY

(Case 10-T-0139)

In August 2010, Champlain Hudson Power Express, Inc., (CHPEI) filed an application for a Certificate of Environmental Compatibility and Public Need for a 1000 MW transmission facility from the Canadian border in the Village of Rouse's Point, Town of Champlain, Clinton County, to New York City (the Application). The new facility would be located largely underwater (sub-aquatic) in Lake Champlain and the Hudson River. However, for one segment of the route, the facility would bypass the water bodies, exiting the Champlain Canal north of Lock 12 and following an approximately 70-mile underground route in existing railroad rights of way, southwest to Schenectady and then southeast to enter the Hudson River south of Albany in the Town of Coeymans. The direct current circuit would terminate at a proposed converter station in Yonkers, where a sub-aquatic alternating current would continue south to an interconnection in Astoria Queens. The new facility would allow CHPEI to interconnect hydroelectric and wind generation from Canada to the State's electric transmission system and New York City. CHPEI also has requested that the Commission issue a water quality certification pursuant to the Federal Water Pollution Control Act, Section 401 (33 U.S.C. §1341). (See application, Section 6.3, page 15.)

TAKE NOTICE that public statement hearings will be held before Administrative Law Judges Michelle L. Phillips and Kevin J. Casutto, as follows:

Yonkers, NY	Monday, October 25, 2010 6:00 p.m. Riverfront Library 1 Larkin Center Yonkers, NY 10701
Kingston, NY	Thursday, October 28, 2010 6:00 p.m. Kingston City Hall Council Chambers 420 Broadway, Second Floor Kingston, New York
Schenectady, NY	Wednesday, November 3, 2010 6:00 p.m. Schenectady County Public Library McChesney Room 99 Clinton Street Schenectady, New York
Whitehall, NY	Thursday, November 4, 2010 6:00 p.m. Whitehall Town Office 58 Skenesborough Drive Whitehall, New York 12887
Plattsburgh, NY	Tuesday, November 9, 2010 5:30 p.m. Plattsburgh Public Library Auditorium 19 Oak Street Plattsburgh, New York 12901

The public will have an opportunity to present their comments at these hearings before the Administrative Law Judge(s). A verbatim transcript of the hearings will be made for inclusion in the record of this proceeding. It is not necessary to make an appointment in advance or to present written material in order to speak at the public statement hearing. Speakers will be called after completing a card

requesting time to speak. Each hearing will remain open and will continue until everyone wishing to speak has been heard or other reasonable arrangements are made.

Disabled persons requiring special accommodations may place a collect call to the Department of Public Service's Human Resource Management Office at (518) 474-2520 as soon as possible. TDD users may request a sign language interpreter by placing a call through the New York Relay Service at 711 to reach the Department of Public Service's Human Resource Office at the previously mentioned number.

In addition to the formal public statement hearing, comments may be mailed to Honorable Jaclyn A. Brilling, Secretary, NYS Public Service Commission, Three Empire State Plaza, Albany, New York 12223-1350, or electronically at secretary@dps.state.ny.us. Your comment should refer to "Case 10-T-0139, Champlain Hudson - Article VII."

Toll-Free Opinion Line: You may call the Commission's Opinion Line at 1-800-335-2120. This number is set up to take comments about pending cases from in-state callers, 24 hours a day. Callers should select English or Spanish and press "1" to leave comments.

Internet: Comments may also be made via the "PSC Comment Form," in the "Consumer Assistance" file accessed through the Commission's Web site at http://www.dps.state.ny.us or via the "Contact Us" link at http://www.AskPSC.com. Many libraries offer free Internet access

All statements and comments received by the Administrative Law Judges and the Commission will become part of the record in this proceeding.

The application and all related documents have been filed in the Commission's file room in its Albany offices, Central Files, 14th Floor, Three Empire State Plaza and are available for viewing on the Commission's Web site at

www.dps.state.ny.us by searching Case 10-T-0139 or under the "What's Hot Electric" pulldown menu. CHPEI's application for the proposed transmission facility can also be viewed at local libraries and City, Town or Village Halls in municipalities in which the route is proposed to be located. In addition, the CHPEI application and related documentation may be viewed at the company's website (http://www.chpexpress.com/).

The matters described above are being considered in Case 10-T-0139 - Application of Champlain Hudson Power Express, Inc. for a Certificate of Environmental Compatibility and Public Need Pursuant to Article VII of the PSL for the Construction, Operation and Maintenance of a High Voltage Direct Current Circuit from the Canadian Border to New York City.

JACLYN A. BRILLING
SECRETARY

APPENDIX D

ALTERNATIVES ANALYSIS

CHAMPLAIN HUDSON POWER EXPRESS PROJECT

ALTERNATIVES ANALYSIS

CHAMPLAIN HUDSON POWER EXPRESS PROJECT
ALTERNATIVES ANALYSIS

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CHAMPLAIN HUDSON POWER EXPRESS PROJECT
ALTERNATIVES ANALYSIS

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1.0 ALTERNATIVES ANALYSIS

In accordance with the Clean Water Act Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material (Guidelines), the Applicants developed a "least environmentally damaging practicable alternative" (LEDPA) analysis for the project, which was submitted in April of 2010. In response to a letter sent by the USACE in July of 2010, the Applications submitted supplemental materials in August of 2010. The April 2010 and August 2010 documents have been included as Attachment A.

In addition, the Applicants have discussed alternatives as part their application to the New York State Public Service Commission for a Certificate of Environmental Compatibility and Public Need under Article 7 of the New York Public Service Law. Route alternatives were also presented as part of the Notice of Intent (NOI) to prepare an Environmental Impact Statement published by the U.S. Department of Energy.

Below is a brief discussion of the alternatives presented and evaluated during the federal and state permitting process for the CHPE Project since March 2010.

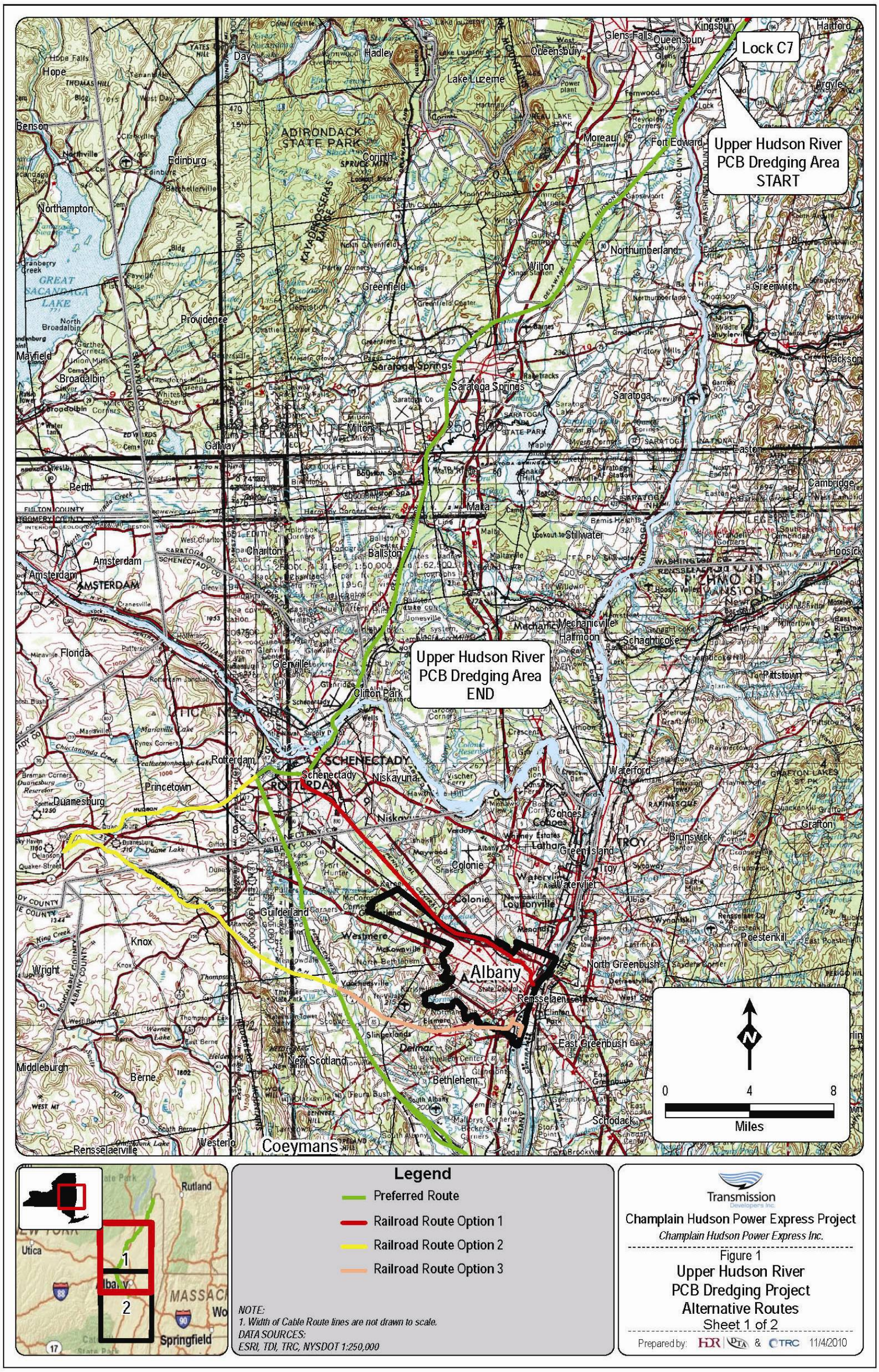
1.1 Application for Certificate of Environmental Compatibility and Public Need (March, 2010)

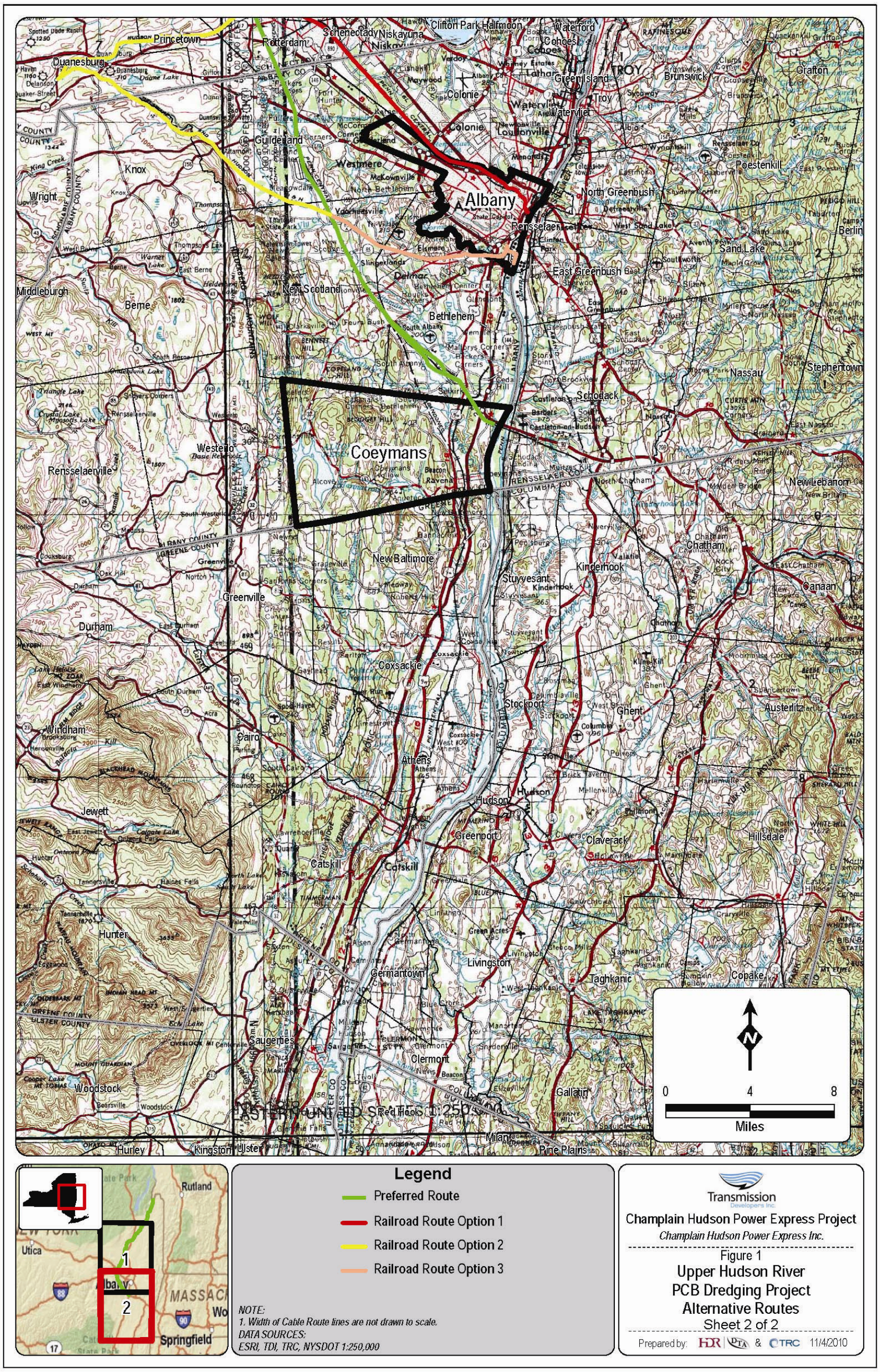
Exhibit 3 of the March 30, 2010 Application for Certificate of Environmental Compatibility and Public Need included an Alternatives Analysis. Alternative routes discussed in Exhibit 3 of the March 2010 Application are summarized below.

Railroad Alternatives to the Upper Hudson River PCB Dredging Site: During initial design stages, the Applicants evaluated a cable route which would extend the length of the Champlain Canal from Whitehall to the Federal Dam at Troy. However, consultation with agencies indicated that the HVDC cables should not be installed within the Upper Hudson River before completion of the dredging activities associated with the Upper Hudson River PCB Dredging Project, estimated at the time to continue through 2016. The northern portion of the Upper Hudson River PCB Dredging Project begins near the former Fort Edward Dam at lock C7. In order to avoid the dredging activities and contaminated sediments associated with the Upper Hudson River PCB Dredging Project, the Applicants determined that the HVDC cables would not be sited within the Champlain Canal/Upper Hudson River south of lock C7.

As part of the Upper Hudson River PCB Dredging Project bypass route, the Applicants evaluated three railroad ROWs in order to circumvent the metropolitan Albany area and return the route to the Hudson River. The Railroad Alternative routes included a CSX Transportation Inc (CSX) spur that extended north of Albany into the Hudson River, a CP spur, and an abandoned railroad ROW that extended from Voorheesville to Albany into the Hudson River. The CSX and CP spurs were rejected as the preferred alternative due to engineering concerns while the third option was rejected due to potential conflicts associated with its proposed future development as a public bike path. Therefore, the preferred route extends along the CP railroad through Schenectady before transitioning to the CSX railroad corridor that continues southeast into the Hudson River in the town of Coeymans (Figure 1).

FIGURE 1
UPPER HUDSON RIVER PCB DREDGING PROJECT ALTERNATIVE ROUTES

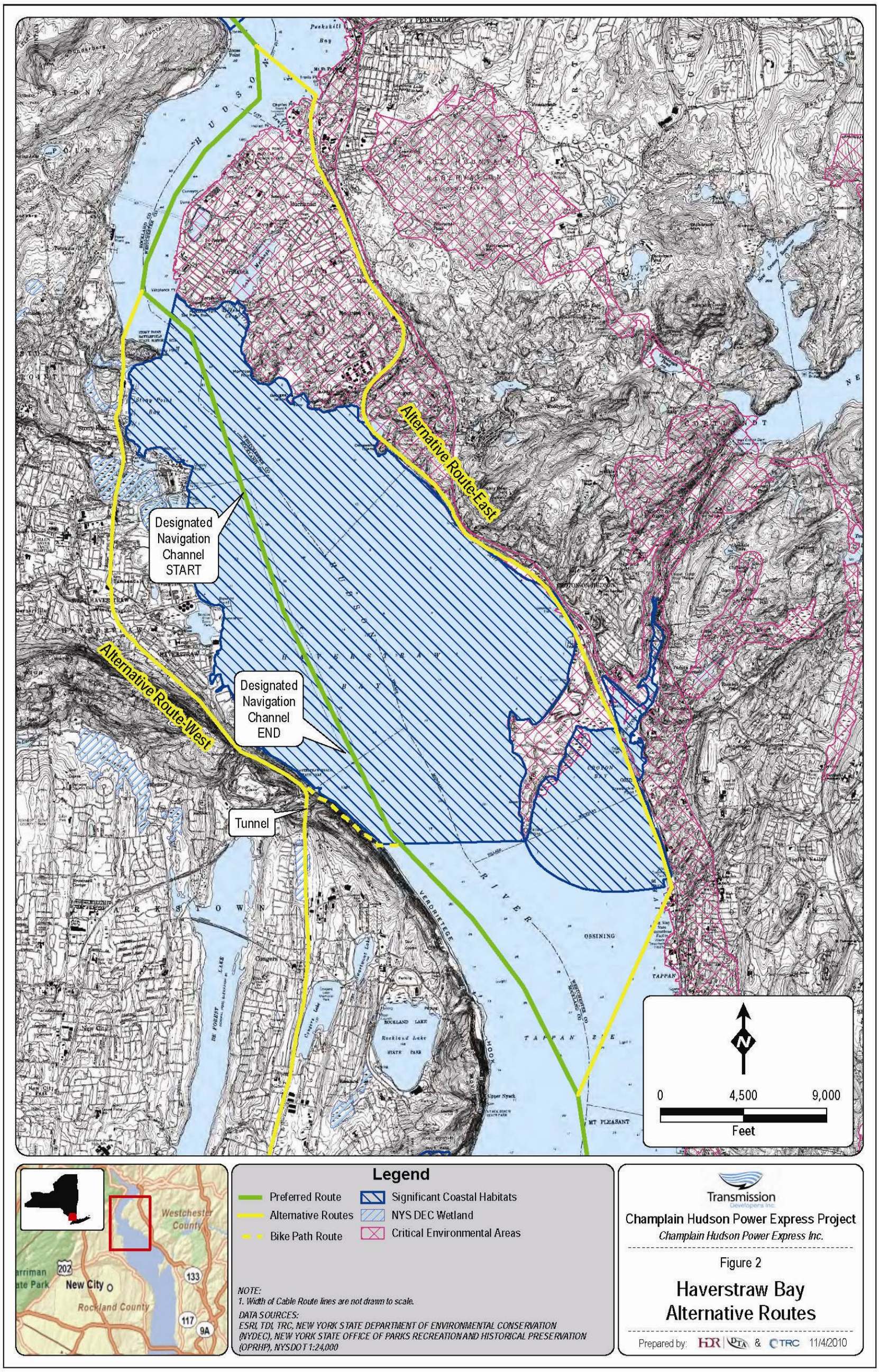



Princetown
Duanesburg
Rotterdam
Schenectady
Niskayuna
Clifton Park
Halfmoon
Waterford
Cohoes
TROY
Grafton
Brunswick
Greenisland
Troy
Watervliet
Colonie
Latham
Loudonville
Guilderland
Westmere
Knox
Wright
Albany
North Greenbush
Poestenkill
Rensselaer
East Greenbush
Sand Lake
Berlin
Middleburgh
New Scotland
Berne
Bethlehem
Nassau
Schodack
Stephentown
Coeymans
Rensselaerville
Westerlo
New Lebanon
Chatham
New Baltimore
Kinderhook
Stuyvesant
Canaan
Greenville
Durham
Coxsackie
Stockport
Ghent
Austerlitz
Windham
Cairo
Athens
Hudson
Jewett
Greenport
Claverack
Hillsdale
Catskill
Hunter
Germantown
Livingston
Taghkanic
Copake
Saugerties
Clermont
Woodstock
Gallatin
Red Hook
Milan
Hurley
Kingston
Pine Plains
0
4
8
Miles
Rutland
Utica
Springfield
1
2
Legend
Preferred Route
Railroad Route Option 1
Railroad Route Option 2
Railroad Route Option 3
NOTE:
1. Width of Cable Route lines are not drawn to scale.
DATA SOURCES:
ESRI, TDI, TRC, NYSDOT 1:250,000
Transmission Developers Inc.
Champlain Hudson Power Express Project
Champlain Hudson Power Express Inc.
Figure 1
Upper Hudson River
PCB Dredging Project
Alternative Routes
Sheet 2 of 2
Prepared by: HDR | DTA & TRC 11/4/2010

Railroad Alternative to Champlain Canal: As part of the Alternatives Analysis, the Applicants evaluated alternative routes located between lock C12 and lock C8. In addition to evaluating a submarine route within the Champlain Canal from Whitehall to lock C8, the Applicants evaluated the feasibility of utilizing an existing railroad right-of-way (ROW) owned/operated by Canadian Pacific (CP) located immediately west of the Champlain Canal to completely bypass the Champlain Canal and associated lock systems from lock C12 to lock C8. While this alternative was determined to not be the preferred route in the March 2010 Application, due to environmental and engineering issues, the New York State Canal Corporation raised concerns about its ability to enter into a long term agreement that would provide the right to locate in or around the Champlain Canal. As a result, the railroad alternative route to the Champlain Canal became the preferred route.

Haverstraw Bay Alternatives: The Applicants' initial design called for the cables to be installed outside of the federal navigation channel, but New York State Department of State (NYSDOS) staff indicated that the project could not be installed within undisturbed portions of Significant Coastal Habitat located in Haverstraw Bay. The Applicants evaluated railroad rights-of-way along the eastern and western shores of Haverstraw Bay, both of which are operated by CSX (Figure 2). On the western side of the Hudson River, the Applicants felt the cables could reasonable exit the Hudson River to the north of Stony Point State Park. However, near the southern portion of the bay the railroad line first enters Hook Mountain State Park and then after turning south enters a tunnel. The Applicants concluded it would be difficult to obtain permission to place the lines within a State park and that there would be engineering difficulties associated with cable installation within the tunnel. On the eastern side, the Applicants felt that the cables could reasonably leave the Hudson River to the south of Deepen Park in Buchanan. However, this portion of the line is heavily utilized by passenger trains, which would pose significant technical hurtles. In addition, the railroad traverses areas designated as Critical Environmental Areas by Westchester County.

FIGURE 2
HAVERSTRAW BAY ALTERNATIVE ROUTES



New York –New Jersey Harbor Alternative: The Applicants evaluated alternative routes within the vicinity of New York City. In addition to the preferred submarine route extending through the Hudson River before extending through the Harlem River, an alternative route was evaluated, which extends south through the Hudson River until reaching New York – New Jersey Harbor, at which point the cables would enter the East River. This option was rejected due to heavy marine traffic, as well as a greater number of anchorage areas, underground tunnels, and overhead bridges.

Previously Disturbed Overland Routes: Exhibit 3 of the March 2010 Application also contained a discussion of the Applicants' review of previously disturbed areas including existing roadway corridors, railroad rights-of-way, and transmission rights-of-way. The section presented the constraints generally associated with these routes as compared to preferred route. However, specific overland routes are not presented.

1.2 Notice of Intent to Prepare an Environmental Impact Statement (June, 2010)

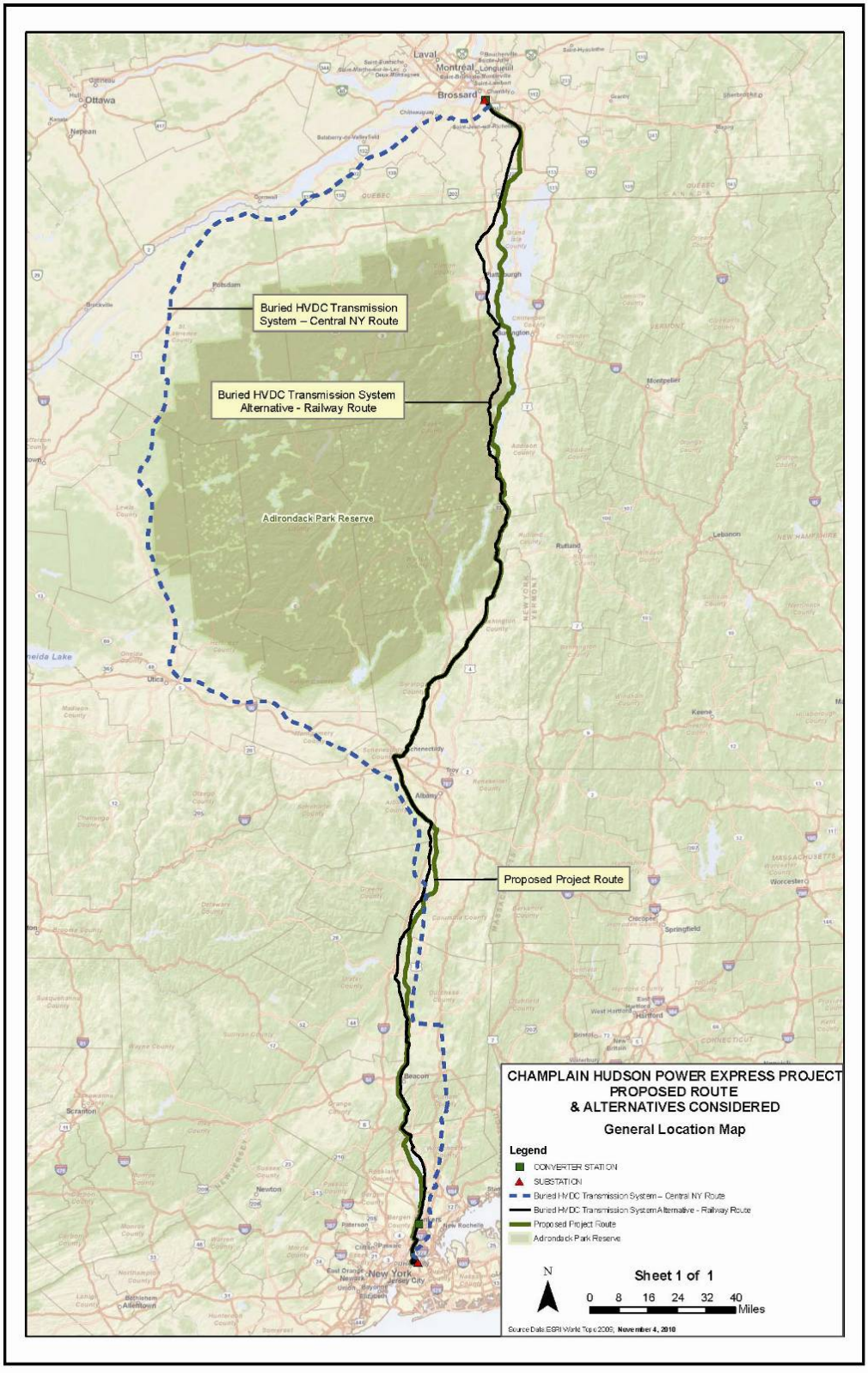
On June 18, 2010, the U.S. Department of Energy published a Notice of Intent (NOI) to prepare an Environmental Impact Statement and to conduct public meetings in response to the Applicants' submission of an application for a Presidential Permit. A copy of the NOI is provided (including maps of the alternatives presented) is included as Attachment B.

The NOI noted that three action alternatives (routes) for constructing the proposed transmission line within the United States have been identified by the Applicants. Route A (the preferred route at the time) included a segment within the Champlain Canal from Whitehall, NY to an area just north of lock C8 near Hudson Falls, NY. Route B (the current preferred route) includes a railroad ROW from Whitehall, NY (lock C12) to lock C8 to completely avoid the Champlain Canal. Route C was a combination of upland and submarine portions between Whitehall and Moreau, NY, as further described in the NOI (see attached). The Route C alternative assumed that PCB dredging activities associated with the Hudson River PCB Dredging Project, planned for the area around Rogers Island, are completed by 2013.

1.3 Application for Certificate of Environmental Compatibility and Public Need (July, 2010)

After reviewing the information submitted in the March 2010 Application, staff from the NYSDPS requested additional information regarding overland alternative routes, including impacts to wetlands and other sensitive areas. In support of the NYSDPS requested information, alternatives were evaluated to determine their feasibility, consistency with the Project's purpose and need, and their overall impacts. A detailed analysis was completed for two overland routes located in New York: a) routing an overhead HVDC transmission system along existing transmission corridors through central New York, and b) burying the cables within existing railroad corridors along eastern New York (Figure 3).

FIGURE 3
CHAMPLAIN HUDSON POWER EXPRESS PROJECT
PROPOSED ROUTE AND ALTERNATIVES CONSIDERED



Consistent with the information submitted in the April 2010 LEDPA evaluation, the CECPN Application supplemental information included an evaluation of the environmental impacts associated with the proposed project in comparison to the upland alternative routes considered. Due to the scale of the Project, it was not possible to obtain detailed field information (e.g., field survey data) for the alternatives; therefore, the evaluations are based on a review of readily available desktop information. The resources evaluated include the following:

- Geologic resources and soils,
- Terrestrial biological resources,
- Aquatic biological resources,
- Wetlands and water resources,
- Cultural resources,
- Land use, and
- Visual resources/aesthetics.

The analysis indicated that, while the proposed Project may have short-term impacts on some resources, the only long-term impacts would be to cultural resources where there are unavoidable areas of cultural sensitivity and to potentially to isolated wetland areas based on installation techniques utilized.

Both the overhead and buried overland alternatives considered would have the same level of unavoidable impact to cultural resources, albeit in different locations, and would not have the flexibility of the proposed Project to avoid such resources. Land clearing associated with establishing and maintaining an overhead transmission corridor would represent a permanent impact to wetlands, particularly forested wetlands.

1.4 Alternatives Presented by the NYSDPS for Further Evaluation by the Applicants (October, 2010)

On October 27, 2010, the Applicants received a letter from the NYSDPS, which identified alternative route segments and an alternative converter station site that the NYSDPS indicated it would support if the Commission were to make the statutory findings specified in §126(1) of the Public Service Law that are not related to the routing of the transmission facility. A copy of the October 2010 letter (including a map of alternative routes) is included as Attachment C.

The NYSDPS alternative route segments were identified as the Hudson River Western Rail Line Route, the Harlem River Rail Route, and the Hell Gate Bypass Route. Additionally, the NYSDPS identified an alternate converter station site in the Bronx that is located on publically owned vacant land and would coincide with the Hell Gate Bypass Route.

Based on initial evaluations of the NYSDPS alternatives route segments, the Applicants believe that the Hudson River Western Rail Line Route alternative, as a whole, is infeasible and that portions of the Harlem River Rail Route appear unfavorable to accommodate Project infrastructure. The Applicants are still in the process of evaluating the Hell Gate Bypass Route and is in discussions with the land owner to further evaluate the Bronx Converter Station Site.

1.5 Current Status of Alternatives Analysis for CHPE Project (December 2010)

Due to the length and nature of the CHPE Project, many different routes between Canada and New York City have been proposed and evaluated for the Project. Over time, information has surfaced, which has contributed to the assessment of each routes' feasibility, practicality, or potential impacts. Below is a brief discussion of the current status of the aforementioned alternative routes, which have been presented and evaluated as part of the federal and state permitting processes since March 2010.

- Champlain Canal Lock Alternatives from Whitehall to Federal Dam at Troy
  - *While the use of the Champlain Canal System may be a feasible alternative in terms of engineering considerations, current statutory requirements do not allow the Applicants to obtain sufficient land control rights. Therefore, use of an underground cable system at this location is not considered feasible from a regulatory standpoint and has been eliminated from further consideration by the Applicants.*
- Upper Hudson River PCB Dredging Alternative around Albany, New York
  - *CHPEI evaluated use of an underground transmission cable located in one three railroad rights-of-way in the vicinity of Albany, NY in order to avoid the Hudson River PCB Dredging Project and enter the Hudson River. Although the alternatives evaluated may be a feasible alternative in terms of engineering considerations, the Applicants believe that the route identified as the preferred route to bypass both the Upper Hudson River PCB Dredging Area as well as the highly urban areas within Albany represents the most feasible route with the least amount of impacts.*
- Haverstraw Bay Alternatives
  - *The Applicants' evaluation determined that the Haverstraw Bay Western Railroad Route Alternative poses severe technical constraints when compared to installation of the Project's cables in the Hudson River.*
  - *The Applicants' evaluation determined that the Haverstraw Bay Eastern Railroad Route Alternative is infeasible and has been eliminated from further consideration by the Applicants.*
- New York - New Jersey Harbor Alternatives
  - *This option was rejected due to heavy marine traffic, as well as a greater number of anchorage areas, underground tunnels, existing submerged infrastructure, and overhead bridges and has been eliminated from further consideration by the Applicants.*
- Overhead Transmission System
  - *The Applicants have indicated that they will not pursue an overhead transmission system project; therefore, the overhead transmission system alternatives have been eliminated from further consideration.*
- Buried HVDC Transmission System Collocated along Freeway Corridor
  - *Given the regulatory restrictions over burying the HVDC cables along the free-way corridors combined with the project development timeline, the Applicants eliminated this option from further consideration.*

- Buried HVDC Transmission System Collocated with Existing Overhead Transmission Corridor - Adirondack Park Route
  - *This alternative would require construction of a new transmission line right-of-way through the Adirondack Park and potentially state land designated as Forest Preserve land. Therefore, the Buried HVDC Transmission System Collocated with Existing Overhead Transmission Corridors - Adirondack Park Route is considered impractical and has been eliminated from further consideration by the Applicants.*
- Buried HVDC Transmission System Collocated with Existing Overhead Transmission Corridor - New England Route
  - *The Applicants' June 2010 decision to eliminate the 1,000 MW transmission system connecting to the ISO-NE electricity grid in Connecticut meant that a route that was approximately 90% located within New England states would be impractical considering that the Project would not benefit these states. Therefore, the New England Transmission Corridor Alternative Route has been eliminated from further consideration by the Applicants.*
- Buried HVDC Transmission System Collocated with Existing Overhead Transmission Corridor - Central New York Route
  - *The evaluation indicated that portions of this alternative pose severe engineering challenges associated with the installation of Project infrastructure and it would not be possible to have an entirely buried line. Additionally, this alternative is considered cost prohibitive by the Applicants. Therefore, this alternative has been eliminated from further consideration by the Applicants.*
- Buried HVDC Transmission System within a Railroad Corridor
  - *Evaluations of the Railroad Alternative Route identified many portions of the route with severe engineering constraints, as described and depicted in this document, that would make utilizing this entire alternative route infeasible.*

In addition to the alternatives described above, on October 27, 2011, the NYDSPS issued a letter to the Applicants, which identified alternative route segments and an alternative converter station site. The NYSDPS alternative route segments were identified as the Hudson River Western Rail Line Route, the Harlem River Rail Route, the Hell Gate Bypass Route, and the Bronx Converter Station Site.

- Hudson River Western Rail Line Route
  - *At this time, the Applicants believe that the Hudson River Western Rail Line Route alternative, as a whole, is infeasible.*
- Harlem River Rail Route
  - *An initial evaluation indicated that portions of this route appear unfavorable to accommodate Project infrastructure.*
- Hell Gate Bypass Route
  - *CHPEI is still in the process of evaluating this alternative route. CHPEI will provide information on their evaluation at a later date.*
- Bronx Converter Station Site
  - *CHPEI is still in discussions with the land owner to further evaluate this alternative converter station site. CHPEI will provide information on their evaluation at a later date.*

2.0 CONCLUSIONS

Based on the alternative routes presented and evaluated to date as well as information provided by federal, state, and local agencies, the Applicants believe that the preferred route extending through Lake Champlain, the Champlain Canal, Hudson River (from Coeymans to the Harlem River), Harlem River, and East River in addition to the 90 mile overland portion (using railroad corridors) from Whitehall to Coeymans, NY represents the most practical and feasible route with the least environmental impacts.

The Applicants understand, however, that the agencies involved in the current permitting processes (such as the currently on-going settlement negotiations with New York State agencies) may present additional alternative routes for evaluation. The Applicants are committed to working cooperatively to identify the most cost-effective, practical alternative with the least environmental impacts.

ATTACHMENT A
APRIL 2010 LEDPA EVALUATION AND AUGUST 2010 SUPPLEMENT

HDR | DTA

April 9, 2010

Naomi Handell
U.S. Army Corps of Engineers, New York District
Jacob K. Javits Federal Building
26 Federal Plaza, Regulatory Br., Room 1937
New York, NY 10278-0091

SENT VIA ELECTRONIC MAIL

Cori Rose
U.S. Army Corps of Engineers
New England District
696 Virginia Road
Concord, MA 01742-2751

SENT VIA ELECTRONIC MAIL

Subject: Least Environmentally Damaging Practical Alternative Analysis for the Champlain Hudson Power Express Project

Dear Ms. Handell and Ms. Rose:

As you know, Champlain Hudson Power Express Inc. (CHPEI) has proposed to develop the Champlain Hudson Power Express Project (Project) to connect renewable sources of generation with load centers in the New York City and southwestern Connecticut regions. The Project will include underwater and underground, high-voltage direct current (HVDC) transmission cables connecting HVDC converter stations in Canada with HVDC converter stations in Yonkers, New York, and Bridgeport, Connecticut. CHPEI intends to file applications with the U.S. Army Corps of Engineers (USACE) to obtain construction permits for the Project pursuant to Section 404 of the Clean Water Act (Section 404)[1] and Section 10 of the Rivers and Harbors Act of 1899 (Section 10)[2].

Under the Clean Water Act Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material (Guidelines)[3], the USACE may not issue a permit for the discharge of dredged or fill material if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant environmental consequences. In accordance with the Guidelines, CHPEI has developed an alternatives analysis that provides an overview of the proposed Project and evaluates the alternatives considered in the Project's design process. The study concludes that,

[1] 33 USC 1344

[2] 33 USC 403

[3] 40 CFR Part 230

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while the proposed Project would have short-term impacts on some resources, reasonable alternatives (including overland routes) would have similar impacts and in some cases greater, long-term impacts.

It may be useful to you in your review of this document to consider how other similar submerged transmission projects address the Section 404(b)(1) requirements. HDR|DTA completed background research on the following projects.

Cross Sound Cable Project: The Cross Sound Cable Project is an approximately 25-mile-long bipolar HVDC submarine power cable extending between New Haven, Connecticut, and the Long Island community of Shoreham, New York. A full alternatives analysis was not deemed necessary, as the USACE determined that the jet plow method of installation fell under Section 10[4]. The least environmentally damaging practicable alternative (LEDPA) analysis consisted of a statement that the project was a submerged cable project and land-based alternatives were not practical.[5]

Juan de Fuca Project: The Juan de Fuca Project is an approximately 31-mile-long, 550-megawatt (MW) HVDC cable that extends beneath the Strait of Juan de Fuca to connect View Royal, British Columbia, with Port Angeles in the State of Washington. According to USACE staff associated with the project, the USACE determined that the trenching-and-backfill nature of the project resulted in a minimal Section 404 review.[6] The Permit Evaluation and Decision Document noted that the applicant had considered three methods of installing the cable, but the impact for each was similar. The USACE author stated that he/she had conducted an independent analysis of project alternatives and that the project represented "the least environmentally damaging practicable alternative available to the applicant capable of achieving the proposal's purpose" and that the discharge of backfill material during the cable installation "will not result in an unacceptable degradation of the aquatic environment."

Trans Bay Cable Project: The Trans Bay Cable Project is a 57-mile-long, 400-MW HVDC transmission line consisting in San Francisco Bay and the Carquinez Straits, extending from a terminus in the City of Pittsburg in Contra Costa County to a terminus in the City of San Francisco in the vicinity of Potrero Point. As part of an Environmental Impact Report, the alternatives considered by the applicant included: a) alternative converter station sites, b) a new transmission corridor, c) utilizing existing utility and transportation corridors, d) new generation capacity, and e) demand management. A screening process found only the "alternative converter station sites" alternative was infeasible and/or capable of meeting the project goals and objects and so all of the other alternatives were eliminated. HDR|DTA assumes that this alternative analysis was considered sufficient for the LEDPA review, but calls to the associated USACE office have not confirmed this assumption.

[4] Personal communication, Tim Dugan, USACE, 3/16/2010.

[5] Personal communication, Diane Ray, USACE, 3/12/2010.

[6] Personal communication, Olivia Romano, USACE, 3/16/2010.

Neptune Regional Transmission System: The Neptune Regional Transmission System is a 65-mile-long HVDC electric transmission line that connects Sayreville, New Jersey, to Long Island, New York. In the application to the USACE, the no-action alternative was not considered to be in the best interest of the public and all of the alternatives considered in the application were primarily submerged routes. With regards to an upland route, the application states that "the high cost of installing high-voltage transmission lines in upland areas in densely populated urban and suburban areas would be an obvious deterrent" and that "use of the submarine route makes this project economically feasible."

In presenting this background information, CHPEI acknowledges that the length of these projects relative to CHPEI's Project prevents a direct comparison. However, it should provide a high degree of confidence that our LEDPA analysis is sufficiently detailed in its overall approach and scope to meet the requirements of the Section 404(b)(1) of the Clean Water Act.

We look forward to speaking with you in the near future about this alternatives analysis. Please feel free to contact me at any time if you have any questions or concerns about the document.

Regards,

Sean Murphy
Project Manager

Enclosure

CHAMPLAIN HUDSON POWER EXPRESS HVDC TRANSMISSION PROJECT

LEAST ENVIRONMENTALLY DAMAGING PRACTICAL ALTERNATIVE EVALUATION

Prepared for:
CHAMPLAIN HUDSON POWER EXPRESS, INC.
Toronto, Ontario

Prepared by:
HDR | DTA
Portland, Maine

APRIL 2010

CHAMPLAIN HUDSON POWER EXPRESS
HVDC TRANSMISSION PROJECT
LEAST ENVIRONMENTALLY DAMAGING PRACTICAL ALTERNATIVE EVALUATION

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List of Acronyms

AC	alternating current
CHPEI	Champlain Hudson Power Express, Inc.
CO2	carbon dioxide
Corps or USACE	U.S. Army Corps of Engineers
CP	Canadian Pacific Railway
CSX	CSX Transportation, Inc.
CTDEP	Connecticut Department of Environmental Protection
DC	direct current
DOE	U.S. Department of Energy
ECP	eastern Canadian premiers
EIA	U.S. Energy Information Administration
EMF	electromagnetic fields
GHG	greenhouse gas
Guidelines	Guidelines for Specification of Disposal Sites for Dredged or Fill Material (40 CFR Part 230)
HDD	horizontal directional drilling
HVAC	high-voltage alternating current
HVDC	high-voltage direct current
ISO	Independent System Operators
kg/m	kilogram per meter
kV	kilovolt
LEDPA	least environmentally damaging practicable alternative
LEI	London Economics International, LLC
MNCR	Metro-North Commuter Railroad Co.
MW	megawatt
NAAQS	national ambient air quality standards
National Register	National Register of Historic Places
NEG	New England governors
NE-ISO	New England Independent System Operator
NY-ISO	New York Independent System Operator

NYPA.....New York Power Authority
NYRI.....New York Regional Interconnect Project
NYSCC .....New York State Canal Corporation
NYSDEC.....New York State Department of Environmental Conservation
OSI .....Ocean Surveys, Inc.
PCBs .....polychlorinated biphenyls
PM.....particulate matter
Project .....Champlain Hudson Power Express Project
RGGI.....Regional Greenhouse Gas Initiative
RPS .....Renewable Portfolio Standard
USACE or Corps.....U.S. Army Corps of Engineers
USCG.....U.S. Coast Guard
USEPA.....U.S. Environmental Protection Agency
VOCs.....volatile organic compounds
XLPE.....cross-link polyethylene

Executive Summary

The U.S. Environmental Protection Agency (USEPA) and the U.S. Army Corps of Engineers (Corps or USACE) developed the Guidelines for Specification of Disposal Sites for Dredged or Fill Material (40 CFR Part 230) (Guidelines) to implement Section 404(b)(1) of the Clean Water Act.[1] Pursuant to § 230.10 of the Guidelines, the Corps may not issue a permit for the discharge of dredged or fill material if there is a practical alternative to the proposed discharge that would have a less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant environmental consequences. The standards established under the Guidelines require an applicant for a permit under Section 404(b)(1) to demonstrate that an undertaking is the least environmentally damaging practicable alternative (LEDPA).

In accordance with the Guidelines, Champlain Hudson Power Express, Inc. (CHPEI) has developed this alternatives analysis to evaluate several alternatives considered for the Champlain Hudson Power Express Project (Project). This document provides an overview of the Project and describes the alternatives considered in the Project's design process. As summarized in this analysis, CHPEI considered several alternatives in an effort to identify a LEDPA to the Project. These alternatives were defined in relation the Project's stated purpose, need, and geographic requirements.

The purpose of the Project is to deliver clean and renewable power generated in central and eastern Canada and the U.S. into the load centers of the New York City and southwestern Connecticut regions through a dedicated transmission system that bypasses existing transmission congestion, improves the reliability of the grid, and minimizes impact to the environment.

The Project has been designed to meet the current and future energy needs of New York City and Connecticut by supporting existing New York and Connecticut state goals related to clean and renewable energy and the established state and federal goals to reduce greenhouse gas (GHG) emissions and other air emissions associated with electric generation. The Project also enables distant generators to serve a portion of the regional load while bypassing locations where the transmission system experiences congestion. It avoids the challenges associated with building new generation capacity within the load pocket, which include air quality restrictions, high real

[1] 33 U.S.C. 1344.

estate values, fuel supply problems, and local opposition to power plants. The Project satisfies the U.S. Department of Energy's (DOE) recommendation in the 2006 National Electric Transmission Congestion Study by providing a transmission interconnection to renewable energy generating facilities in Canada and northern New York with the load centers of the New York City and southwestern Connecticut regions.

The Project consists of a 2,000-megawatt (MW) high-voltage direct current (HVDC) transmission system that includes two 1,000-MW bipoles. One bipole will extend between Montreal, Canada, and New York City, New York, and the other will extend between Montreal, Quebec, and Bridgeport, Connecticut.[2]

The Project will include underwater and underground HVDC transmission cables connecting HVDC converter stations in Canada with HVDC converter stations in Yonkers, New York, and Bridgeport, Connecticut. There will be no overhead transmission lines constructed as part of the proposed Project. To the extent possible, CHPEI proposes to install the transmission cables along and within existing waterways to minimize long-term land use and visual impacts typically associated with traditional overhead transmission lines, while providing the additional capacity required to meet the increasing clean and renewable energy demands of the greater New York City metropolitan area and the State of Connecticut.

The proposed Project's HVDC transmission system is buried within waterways, to the greatest extent feasible, along the entire Project route. From the Canadian border to New York City and Connecticut, a continuous waterway network was identified and consists of Lake Champlain, the Champlain Canal, the Hudson River, the Harlem River, the East River, and Long Island Sound.

During the process of developing the proposed Project, a range of alternatives were evaluated to determine the feasibility of the alternatives, the consistency of the alternatives with the Project's purpose and need, and the overall impacts of the alternatives. The preliminary evaluation determined that certain alternatives were infeasible or inconsistent with the Project's purpose and need. These alternatives include demand side management measures, other new generation sources, a buried high-voltage alternating current (HVAC) transmission system, and a no build

[2] These bipoles will provide electricity to the New York Independent System Operator (NY-ISO) and the New England Independent System Operator (NE-ISO) markets, respectively.

alternative. The preliminary evaluation also identified alternatives that were considered technically feasible and consistent with the Project's purpose and need, but deemed to be impractical and were therefore eliminated from further consideration. These alternatives include a submarine-only HVDC transmission system, a buried HVDC transmission system along roadway corridors, and an overhead or buried HVDC transmission system through the Adirondack Park.

The preliminary evaluation identified several alternatives to the proposed Project that were retained for further evaluation. These alternatives include two potential routes for overhead HVDC transmission systems, and three routes for buried overland HVDC transmission systems. Pursuant to the requirements of the Guidelines, the No Build Alternative, although inconsistent with the Project's purpose, is included in the resource impact evaluation for the alternatives considered, which is presented below.

CHPEI evaluated a potential overhead or buried HVDC transmission system that would utilize existing utility rights-of-way extending through central New York between Montreal, Canada, and the New York City and southwestern Connecticut regions. The total length of the central New York route is approximately 434 miles from the Hertel substation near Montreal, Canada, to the Sherman Creek substation in Manhattan, New York, and approximately 447 miles from the Hertel substation near Montreal, Canada, to the Singer substation in Bridgeport, Connecticut. CHPEI evaluated another potential overhead or buried HVDC transmission system that would utilize existing utility rights-of-way extending through Vermont and Massachusetts between Montreal, Quebec, and the New York City and southwestern Connecticut regions. The total length of the New England route is approximately 455 miles from the Hertel substation near Montreal, Canada, to the Sherman Creek substation in Manhattan, New York, and approximately 419 miles from the Hertel substation near Montreal, Canada, to the Singer substation in Bridgeport, Connecticut.

CHPEI also considered a buried overland alternative that would utilize existing railroad corridors linking upstate New York with New York City and southwestern Connecticut. CHPEI identified a continuous railroad corridor along the eastern portion of New York. The Buried Railway Alternative is approximately 360 miles in total length from the Hertel substation near Montreal,

Canada, to the Sherman Creek substation in Manhattan, New York, and approximately 388 miles in total length from the Hertel substation near Montrel, Canada, to the Singer substation in Bridgeport, Connecticut.

CHPEI evaluated the environmental impacts for the proposed Project and each of the alternatives considered in order to establish the LEDPA for the Project. Due to the scale of the Project, it was not possible to obtain detailed information (e.g., field survey data) for the alternatives; therefore, the evaluations are based on a review of readily available information. The resources evaluated include the following:

- Air quality,
- Geologic resources and soils,
- Terrestrial biological resources,
- Aquatic biological resources,
- Wetlands and water resources,
- Commercial fishing,
- Cultural resources,
- Land use,
- Traffic and transportation,
- Noise, and
- Visual resources/aesthetics.

The LEDPA analysis for the proposed Project and the alternatives considered is described within this report and briefly summarized below.

Air Quality

Activities associated with the construction of the proposed Project and each alternative considered are anticipated to result in emissions from the construction equipment. The operation of the proposed Project and each alternative considered is not anticipated to result in continued air emissions because the Project is designed to deliver clean and renewable sources of electricity generation. The No Build Alternative assumes that if the Project is not built, continued use of fossil-fuel-powered generation facilities will be required at the current levels or higher, thereby

further contributing to GHG air emissions and contributing to acid rain and ocean acidification, among other effects.

Geologic Resources and Soils

The proposed Project is primarily located in waterways with approximately 74 miles of terrestrial route along previously disturbed existing rights-of-way. Land clearing and blasting activities would be limited to the terrestrial portions of the route and are anticipated to only be required along very limited areas.

The Overhead Transmission System Alternatives are anticipated to require land clearing, blasting, and/or excavation along large portions of these routes; therefore, impacts to geologic resources and soils are anticipated to be long-term impacts.

Similar to the Overhead Alternatives, the Buried Overland Alternatives are anticipated to require land clearing, blasting, and/or excavation activities along large portions of these routes. Therefore, impacts to geologic resources and soils are anticipated to be long-term negative impacts.

No impacts to geologic resources and soils are anticipated for the No Build Alternative.

Terrestrial Biological Resources

The proposed Project is primarily located in waterways with approximately 74 miles of terrestrial route along previously disturbed existing rights-of-way. Land clearing and blasting activities would be limited to the terrestrial portions of the route and are anticipated to only be required along very limited areas. Therefore, impacts to terrestrial biological resources are anticipated to be low or negligible.

The Overhead Transmission System Alternatives are anticipated to require land clearing, blasting, and/or excavation along large portions of these routes; therefore, impacts to terrestrial biological resources are anticipated to be long-term impacts due to habitat conversion and/or loss.

Similar to the Overhead Alternatives, the Buried Overland Alternatives are anticipated to require land clearing, blasting, and/or excavation activities along large portions of these routes. However, it is assumed that lesser areas of land clearing would be required for the Buried Overland Alternative routes than for the Overhead Alternatives.

No impacts to terrestrial biological resources are anticipated for the No Build Alternative.

Aquatic Biological Resources

The proposed Project is primarily sited within waterways. Submarine transmission cable installation methodologies have been selected to utilize the least environmentally damaging practical alternative. Based on an analysis of the submarine cable installation techniques, as well as a review of existing submarine cable projects post-installation monitoring data, it is anticipated that the impacts to aquatic biological resources from the proposed Project will be temporary.

The Overhead Alternatives are not considered to result in a direct impact to aquatic biological resources associated with waterbodies and waterways along the identified routes.

The Buried Overland Alternatives are anticipated to encounter streams, rivers, lakes, ponds, and wetlands along these routes. Because these alternatives consider a buried transmission cable, it is anticipated that there will be temporary impacts to aquatic biological resources during cable construction across waterbodies/waterways.

The No Build Alternative would have no direct effect on aquatic biological resources. The No Build Alternative may result in continued or increased GHG emissions and pollutants contributing toward global warming with indirect effects on aquatic biological resources due to acid rain and oceanic acidification.

Wetlands and Water Resources

The proposed Project is primarily sited within waterways with approximately 74 miles of cables sited along existing railroad rights-of-way. The proposed Project's submarine and land cable

installation methodologies are anticipated to represent a temporary impact to wetlands. No wetlands are anticipated to be permanently impacted by the proposed Project.

The Overhead Alternatives will require land clearing, new transmission towers, and new access roads along large portions of these routes. Therefore, it is anticipated that the impact to wetlands from the excavation and filling required for new towers and access roads would represent a long-term, permanent change in wetland (such as cover type) in or near vernal pools and wetlands.

It is assumed that the Buried Overland Alternatives would have similar impacts to wetlands as the terrestrial portions of the proposed Project. Wetland impacts for the Buried Overland Alternatives are assumed to be less than the Overhead Alternatives because it is assumed that lesser areas of land clearing would be necessary.

The No Build Alternative would have no direct effect on wetland and water resources. The No Build Alternative may result in continued or increased GHG emissions and pollutants contributing toward global warming with indirect effects on wetland and water resources due to acid rain and oceanic acidification.

Cultural Resources

The proposed Project is primarily sited within waterways and existing railroad rights-of-way. The Overhead and Buried Overland Alternatives are sited along existing overland corridors. The proposed Project and alternatives considered in this assessment have the potential to result in long-term impacts to cultural resources. The proposed Project and alternatives would be designed to avoid cultural resources wherever possible. However, there may be instances where cultural resources cannot be avoided by the proposed Project or alternatives. In these instances, CHPEI would develop measures to minimize or otherwise mitigate the effects of the proposed Project or alternatives on historic properties.

Due to the greater likelihood of encountering cultural resources along overland portions, it is assumed that the impacts for the alternatives considered would be greater than for the proposed Project. Because the alternatives are restricted to existing rail, road, and utility corridors, they

offer less siting flexibility. Therefore, the siting options available for avoiding impacts to cultural resources are diminished under the alternatives considered in this analysis.

The No Build Alternative is assumed to have no impacts on cultural resources.

Land Use

The proposed Project is primarily sited within waterways or along previously disturbed overland corridors. Therefore, the proposed Project is not anticipated to have significant impacts on the current land use along the route.

The Overhead and Buried Overland Alternatives are primarily sited along existing, previously disturbed corridors. Changes in land use for these alternatives will be dependent on whether significant corridor expansions and infrastructure upgrades are necessary. However, because land use designations are so closely linked to the aesthetic value of an area, the Overhead Alternatives are considered to have a long-term impact on the land uses along these routes.

The No Build Alternative is assumed to have no impacts on land use.

Commercial Fishing

The proposed Project is primarily sited within waterways, many of which support commercial fishing. Impacts to commercial fishing from the proposed Project are anticipated to be low and temporary. A high level of coordination will be conducted with the commercial fishermen and associated organizations to avoid cable siting in productive fishing areas and avoid installation during productive fishing seasons.

Little to no impacts to commercial fishing are anticipated for the Overhead and Buried Overland Alternatives considered.

The No Build Alternative would have no direct effect on commercial fishing. The No Build Alternative may result in continued or increased GHG emissions and pollutants contributing toward global warming with indirect effects on commercial fishing due to acid rain and oceanic acidification.

Traffic and Transportation Resources

The proposed Project and each of the alternatives considered are assumed to have a temporary impact on transportation networks in the Project's vicinity during construction of the Project.

The No Build Alternative is assumed to have no impacts on traffic and transportation resources.

Noise

The proposed Project and each of the alternatives considered represent a similar noise impact. It is assumed that noise impacts will only be associated with the construction phase of the Project. However, it should be noted that the Buried Overland Alternatives are anticipated to take up to 20 times longer to install as compared to the proposed Project.

The No Build Alternative is assumed to have no impact on noise.

Visual / Aesthetics

The proposed Project and the Buried Overland Alternatives will have little to no impact on the visual/aesthetic resources along the routes.

The Overhead Alternatives utilize large overhead transmission towers and require land-clearing activities; therefore, visual/aesthetic resource impacts will be high and permanent.

The No Build Alternative is assumed to result in indirect impacts to visual resources resulting from global warming caused by air polluting fossil-fuel-powered generation sources because global warming will result in a rise in sea level changing the planet's shorelines. Additionally, GHGs contribute to smog-forming particles, which degrade the viewscape.

The Guidelines established by the USEPA and the Corps require that the applicant demonstrate that there is not a practicable alternative to the proposed Project that would have a less adverse impact on the environment. The Guidelines established by the USEPA and the Corps require that the applicant demonstrate that there is not a practicable alternative to the proposed Project, which would have a less adverse impact on the environment. The analysis presented above demonstrates that, while the proposed Project would have short-term impacts on some resources,

the only long-term impact would be to cultural resources as there may be parts of the route that include areas of cultural sensitivity. However, all of the other alternatives considered, except the No Build Alternative, will also have the same level of impact to unavoidable cultural resources, albeit in different locations, and the siting of the Project within waterways will provide greater flexibility in avoiding these resources than will be allowed within a railroad right-of-way or transmission corridor. In contrast, the overland alternatives considered would either have similar impacts on a resource or, in some cases, would result in greater and/or long-term impacts to the resources. Therefore, CHPEI respectfully submits that the proposed Project be considered consistent with the requirements of the Section 404(b)(1) of the Clean Water Act.

Section 1
Introduction

The USEPA and the Corps developed the Guidelines to implement Section 404(b)(1) of the Clean Water Act.[3] Pursuant to § 230.10 of the Guidelines, the Corps may not issue a permit for the discharge of dredged or fill material if there is a practicable alternative to the proposed discharge which would have a less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant environmental consequences. The standards established under the Guidelines require an applicant for a permit under Section 404(b)(1) to demonstrate that an undertaking is the LEDPA.

In accordance with the Guidelines, CHPEI has developed this alternatives analysis to evaluate several alternatives considered for the Project. This document provides an overview of the proposed Project and describes the alternatives considered in the Project's design process. As summarized in this analysis, CHPEI considered several alternatives in an effort to identify a LEDPA to the proposed Project. These alternatives were defined in relation to the Project's stated purpose, need, and geographic requirements.

1.1 Project Purpose

The purpose of the Project is to deliver clean and renewable power generated in central and eastern Canada and the U.S. into the load centers of the New York City and southwestern Connecticut region through a dedicated transmission system that bypasses existing transmission congestion, improves the reliability of the grid, and minimizes impact to the environment. CHPEI has designed the Project to meet the need for additional sources of competitively priced electricity from clean and renewable sources of energy for the areas of southwestern Connecticut and New York City. The stated purposes of the Project are to:

- Provide 2,000 MW of clean and renewable sources of electricity to New York City and southwestern Connecticut to meet future energy needs and the states' Renewable Energy Portfolio requirements;

[3] 33 U.S.C. 1344.

- Provide significant new transmission infrastructure into New York City and southwestern Connecticut to deliver additional energy while avoiding congestion on the electric grid;
- Place downward pressure on the price of electricity in the location marginal price spot markets operated by independent system operators (ISOs) in the New York and New England areas;
- Reduce air pollution and GHG emissions within the New York City and New England areas by alleviating the need to operate one or more existing fossil-fueled power plants within the regions during periods of congestion;
- Improve stability of the electric grid serving the New York City and southwestern Connecticut areas due to the highly reliable and controllable nature of HVDC technology and its compatibility with Smart Grid initiatives;

- Provide significant new transmission infrastructure into New York City and southwestern Connecticut avoiding the aesthetic impacts associated with traditional overhead transmission lines by developing a project with buried cables within waterways or limited overland routes; and

- Reduce the dependency of the New York City and southwestern Connecticut regions on fossil fuels such as imported oil, thereby improving the security of the electricity grid.

1.2 Project Need

1.2.1 Renewable Energy Goals

The Project supports existing New York and Connecticut state goals related to clean and renewable energy.

New York Governor Paterson's "45 by 15" program, which he announced in his State of the State address on January 7, 2009, is one of the nation's most aggressive energy efficiency and renewable energy initiatives with a goal to meet 45 percent of its electricity needs through energy efficiency and clean renewable energy by 2015. In furtherance of this goal, the Renewable Portfolio Standard (RPS) goal was increased from 25 percent to 30 percent on January 8, 2010 (PSC 2010).

The City of New York also recognized the importance of increasing the amount of renewable electricity available to consumers in New York City in its Plan NYC issued in 2007. In that report, the City of New York recognizes that providing New York City residents with increased access to renewable energy supplies will simultaneously reduce electricity prices, local air pollution, and greenhouse gas emissions in New York City. The New York State Energy Plan states that an increase in renewable energy will require additional transmission in New York (NYSEP 2009).

On June 5, 2007, Connecticut Governor Jodi Rell signed legislation providing several revisions to Connecticut's RPS. The new RPS requires each electric supplier and each electric distribution company wholesale supplier to obtain at least 20 percent of its retail load by using renewable energy by January 1, 2020, with an interim goal of 7 percent by 2010.

1.2.2 Greenhouse Gases

The Project supports established state and federal goals to reduce GHG emissions and other air emissions associated with electric generation. On August 6, 2009, New York Governor David Paterson issued Executive Order No. 24 (2009), setting a goal of reducing the state's greenhouse gas emissions 80 percent from 1990 levels by 2050. The New York State Energy Plan calls for an increase in renewable energy to reduce the emissions of GHGs, nitrous oxides, sulfur dioxide, particulate matter (PM), and volatile organic compounds (VOCs) associated with traditional fossil-fuel-fired power plants (NYSEP 2009). The New York State Department of Environmental Conservation (NYSDEC) has promulgated a number of air regulations aimed at reducing air emissions, including GHGs, associated with the production of electricity.

In June 2008, Connecticut Governor Jodi Rell signed into law House Bill 5600, which set a statewide GHG emissions reduction target of 10 percent below 1990 levels by 2020. Additionally, barring intervention at the federal level or through the Regional Greenhouse Gas Initiative (RGGI), the act requires an 80 percent GHG reduction below 2001 levels by 2050. The act also presents a timetable for achieving the 2020 reductions, and calls for a statewide GHG inventory to be published by December 2009, modeling scenario results by July 2010, and recommended GHG reduction strategies by July 2011. Connecticut is one of 10 states participating in the RGGI, which launched a regional carbon dioxide (CO2) cap-and-trade

program on January 1, 2009. In addition, in August 2001, the New England governors (NEG) and eastern Canadian premiers (ECP) signed the 2001 NEG/ECP Climate Action Plan. The vision of the plan is to reduce GHG emissions to a level that stabilizes the earth's climate and eliminates the negative impacts of climate change. The plan outlines important short- and mid-term goals for measuring progress toward the long-term objective, based on environmental needs and calls for a reduction in CO2 emitted per megawatt hour (MWh) within the region of 20 percent of the current emission rate by 2025 (Connecticut Climate Change Action Plan 2005).

The Clean Air Act requires states, at a minimum, to meet national ambient air quality standards (NAAQS).[4] When a state is in nonattainment of the NAAQS, such as New York, it must have a plan to come into attainment. The New York City metropolitan area is currently considered to be in nonattainment of the ground level ozone NAAQS and in nonattainment of the PM_{10} and $PM_{2.5}$ NAAQS. Ground level ozone is created by emissions of nitrous oxides and VOCs, which are emitted by all fossil-fuel-fired electric generating facilities. PM_{10}, $PM_{2.5}$, and sulfur dioxide are also emitted by fossil-fuel-fired electric generating facilities.

An analysis was conducted for the Project by London Economics International, LLC (LEI) and concluded that over the 10-year period, from 2014 to 2024, the electricity produced via the type of generation to be transmitted by the Project into New York City will reduce emissions of CO2 by 20.2 million tons, sulfur dioxide by 65,653 tons, and oxides of nitrogen by 48,700 tons, with no offsetting emissions at the point of generation. In New England, the LEI study indicated that the Project would contribute to emissions reductions of approximately 21.8 million tons of CO2, 12,149 tons of sulfur dioxide, and 4,832 tons of oxides of nitrogen, with no offsetting emissions at the point of generation.

1.2.3 Transmission Congestion

The 2006 DOE's National Electric Transmission Congestion Study (DOE 2006) identified the metropolitan areas of New York southward through Northern Virginia (the Atlantic Coastal area) as a Critical Congestion Area. This is an area where DOE determined that it is critically important to remedy existing or growing transmission congestion problems because the current

[4] 42 U.S.C. § 7401et seq. (2010).

and/or projected effects of transmission congestion are severe. New England was designated as one of the nation's four Congestion Areas of Concern. These are areas for which a large-scale congestion problem exists or may be emerging, but for which additional analysis is needed to determine the magnitude of the problem. DOE's 2006 study specifically stated that the DOE did not include potential "new merchant DC cables in the New York and New England regions" in their base resource set, as these hypothesized transmissions could "assume away" an otherwise significant new congestion problem.

The 2009 New York State Energy Plan (Plan) indicates that infrastructure investments are necessary to support the state's transition to a clean energy economy and will be driven by strategic longer-term needs, including the need to reduce GHG emissions. The Plan goes on to state that transmission upgrades may allow for fully exploiting the potential benefits of upstate wind resources, additional Canadian electricity imports, and new nuclear capacity, all of which can help meet the multiple policy objectives of the Plan.

New York's electric infrastructure is old; therefore, significant capital investments will need to be made in the utilities' electric transmission and distribution system to meet future electric demand and allow them to continue to provide reliable service. Replacement and improvement of existing aging infrastructure are critical, as system failures not only raise safety and reliability concerns, but can also lead to increased system congestion and therefore higher emissions and costs. New York State's clean energy policy goals, which will increase the contribution of renewable resources in meeting electricity requirements, may also require construction of new infrastructure, irrespective of near-term reliability or economic benefits (NYSEP 2009).

The Project enables distant generators to serve a portion of the regional load while bypassing locations where the transmission system experiences congestion. It avoids the challenges associated with building new generation capacity within the load pocket, which include air quality restrictions, high real estate values, fuel supply problems, and local opposition to power plants. Energy efficiency, demand response, and other demand-side measures can reduce loads and improve the balance between supply and demand, but those measures must be pursued over extended periods (often with uncertain results) in order for their impacts to grow to transmission

or power-plant-equivalent quantities (DOE 2006); therefore, these options do not address critical transmission issues that need immediate solutions.

1.3 Geographic Requirements

The Project is intended to connect clean and renewable sources of electrical generation with load centers in the New York City and southwestern Connecticut regions. Currently, the existing generation facilities in both New York and New England are dominated by oil- and gas-fired projects. These fossil fuel facilities comprise 55 percent of the total generating capacity in New York and 63 percent of the total generating capacity in New England. Elsewhere in the region, electricity markets are dominated by a combination of fossil fuel and nuclear generation. Pennsylvania is one of the largest coal-producing states in the nation, and over 50 percent of Pennsylvania's electricity is generated from coal-fired power plants (U.S. Energy Information Administration [EIA] 2010a). New Jersey's three nuclear power plants supply over 50 percent of the state's electricity, with natural gas and coal-fired plants accounting for the remaining electricity generated in New Jersey (EIA 2010b).

Existing sources of renewable energy generation in the vicinity of the greater New York City metropolitan area are insufficient to sustain current levels and patterns of consumption while meeting the growing capacity requirements. In order to meet the growing renewable energy capacity needs of the greater New York City area, new transmission infrastructure is needed to deliver clean and renewable energy generated from a location outside of New York City. Hydropower projects, wind farms, and other sources of renewable generation in Canada currently generate excess electrical capacity (DOE 2006), thereby making renewable sources of generation in Canada the most practical choice for providing the additional capacity needed to help fulfill regional demands, while increasing the stability and security of the grid. The Project will link these sources to load centers where demand threatens to exceed existing capacity.

As discussed above, the current and/or projected effects of transmission congestion in both New York and New England are severe. The Project enables generators in Canada and the United States to provide a portion of the regional load without further increasing transmission congestion in the region. To do so effectively requires interconnection to the grid at locations within the load pocket. This design allows electricity generated outside of the region to be

delivered directly to distribution systems without the need to rely significantly on the existing transmission facilities that are already suffering congestion.

In analyzing the potential solutions to congestion in the New York City region, the DOE's National Electric Transmission Congestion Study concluded that construction of major new transmission lines to the north of the city would significantly increase the options available to the city for power (DOE 2006). Such transmission lines would deliver relatively inexpensive electricity from Canadian hydroelectric power plants and other renewable sources to load centers in major metropolitan areas (DOE 2006). The proposed Project satisfies the DOE's recommendation by providing a transmission interconnection to renewable energy generating facilities in Canada and northern New York with the load centers of the New York City and southwestern Connecticut regions.

Section 2
Proposed Project

The proposed Project consists of a 2,000-MW HVDC transmission system that includes two 1,000-MW bipoles. One bipole will extend between Montreal, Canada, and New York City, New York, and the other will extend between Montreal, Canada, and Bridgeport, Connecticut.[5]

The proposed Project will include underwater and underground, HVDC transmission cables connecting HVDC converter stations in Canada with HVDC converter stations in New York City and Bridgeport, Connecticut. There will be no overhead transmission lines constructed as part of the proposed Project. To the extent possible, CHPEI proposes to install the transmission cables along and within existing waterways to minimize long-term land use and visual impacts typically associated with traditional overhead transmission lines, while providing the additional capacity required to meet the increasing clean and renewable energy demands of the greater New York City metropolitan area and the State of Connecticut.

The proposed Project alignment was developed considering geographical factors and other constraints to potential transmission lines connecting Canada to the greater New York City and southwestern Connecticut areas. These factors include (but are not limited to):

- The location of existing commercial, industrial, and residential development;
- The location and nature of previously disturbed rights-of-way that can be utilized for new transmission cable installation, including those rights-of-way associated with existing rail lines and transmission lines;
- The location and nature of the New York State Forest Preserve; and
- Ongoing remediation activities associated with the Upper Hudson River PCB Dredging Project.

A number of alternative routings were considered, including overhead routes, underground routes within existing rights-of-way, and underwater routes. Following an evaluation of transmission line technology, cost, and environmental impact, a preferred Project alignment was identified that utilizes existing waterways to minimize the constraints that these factors impose

[5] These bipoles will provide electricity to the NY-ISO and the NE-ISO markets, respectively.

on the construction of a new major transmission system. This alignment follows the most feasible direct route between the converter station near Montreal, Canada, and the converter stations in New York City and Connecticut.

2.1 Proposed Project Route

The proposed Project consists of an HVDC transmission system between Montreal, Canada, and the New York City and southwestern Connecticut areas. The proposed Project's HVDC transmission system is buried within waterways, to the greatest extent feasible, along the entire Project route. From the Canadian border to New York City and Connecticut, a continuous waterway network was identified and consists of Lake Champlain, the Champlain Canal, the Hudson River, the Harlem River, the East River, and Long Island Sound (see Figure 2-1).

During initial Project planning activities, CHPEI consulted with numerous local, state, and federal agencies to discuss the Project. The New York State Canal Corporation (NYSCC) staff indicated that the NYSCC would prohibit HVDC cable installation through or under the existing lock systems in the Champlain Canal. Accordingly, investigations were performed to identify terrestrial bypass routes to circumvent the Champlain Canal lock system facilities. Additionally, USEPA staff stated that HVDC cable installation could not occur within the Upper Hudson River PCB Dredging Project area prior to completion of the dredging activities. Based on the dredging schedule of the Upper Hudson River PCB Dredging Project, it was determined that HVDC cable installation in this portion of the Champlain Canal/Hudson River was not feasible within the Project planning window. Therefore, CHPEI developed a terrestrial bypass route to circumvent the Upper Hudson River PCB Dredging Project area. With the exception of overland bypass routes to avoid the Champlain Canal lock systems and the Upper Hudson River PCB Dredging Project, the proposed Project route is located and buried entirely within waterways.

From the Canadian border, the proposed Project route extends through Lake Champlain entirely within the jurisdictional waters of New York. At the southern end of Lake Champlain, the proposed Project route approaches the Champlain Canal in Whitehall, where Lock C12 is located. The Proposed route utilizes a terrestrial bypass to circumvent Lock C12. The HVDC cables will exit the waterway just north of Lock C12 and will be buried within an existing railroad right-of-way for 1.71 miles, located adjacent to the western shore of the canal. The

HVDC cables will enter the canal just south of Lock C12 and continue (buried) through the canal for 5.58 miles toward Lock C11.

Just north of Lock C11, the HVDC cables will exit the Champlain Canal and will be buried within an existing railroad right-of-way for 0.4 miles, located adjacent to the western shore of the canal. The HVDC cables re-enter the canal just south of Lock C11 and continue (buried) through the canal for 8.9 miles toward Lock C9 (there is no Lock C10).

Just north of Lock C9, the HVDC cables will exit the Champlain Canal and will be buried for 0.45 miles within NYSCC-owned land on the eastern shore of Lock C9. The HVDC cables will re-enter the canal just south of Lock C9 and continue through (buried) the canal for 2.7 miles toward Lock C8.

To avoid installing/burying HVDC cables within the Upper Hudson River PCB Dredging Project, the proposed Project route exits the Champlain Canal north of Lock C8 near Durham Basin, where an existing railroad right-of-way is located immediately adjacent to the canal. Upon exiting the canal, the HVDC cables will be buried along an approximately 70-mile terrestrial railroad bypass route. South of Albany, the proposed Project route exits the railroad right-of-way and enters the Hudson River at the town of Coeymans, New York.

Upon entering the Hudson River at Coeymans, the HVDC cables will be buried within the Hudson River for 118 miles until they reach the City of Yonkers. Two of the four HVDC cables (one bipole) terminate at the converter station located in Yonkers, New York. From the Yonkers HVDC Converter Station, HVAC cables will enter the Hudson River and travel south through the Harlem River for a distance of approximately 6.6 miles. The alternating current (AC) cables will terminate at a transformer station adjacent to ConEdison's existing Sherman Creek substation, near the intersection of West 201st Street and 9th Street, in the Borough of Manhattan. The proposed Project route is 354 miles from the Hertel substation near Montreal, Canada, to the Sherman Creek substation in Manhattan, New York.

From a point adjacent to the Yonkers converter station, the remaining two HVDC cables (the second bipole) will continue another 66 miles through the Hudson River, the Harlem River, and the East River into Long Island Sound to a converter station located in Bridgeport, Connecticut.

The proposed Project route is 420 miles (354 miles of which are the same as the route to New York City) from the Hertel substation near Montreal, Canada, to the Bridgeport, Connecticut HVDC converter station.

The proposed Project route is shown in Figure 2-1.

FIGURE 2-1
PROPOSED PROJECT ROUTE

2.2 Proposed Project Technology

The Project will use crossed-linked polyethylene (XLPE) HVDC cables that are effectively "solid state" cables that contain no fluid. Each submarine cable is approximately 5 inches in diameter and weighs approximately 27 pounds per foot (lb/ft). The XLPE cables are made up of several layers consisting of a conductor, insulation, sheath, bedding, armor, and outer serving. At average burial depths (3-5 feet), the maximum ambient temperature for the cable in the seabed is 20°C. Each land cable is approximately 4 inches in diameter and weighs approximately 29 kg/m. The XLPE cables are made up of several layers consisting of a conductor, insulation, sheath, and outer serving. At average burial depths (3 feet), the maximum ambient temperature for the cable buried in the soil at depth is 20°C.

The proposed Project is a 2,000-MW transmission system consisting of two bipoles. Each bipole has two HVDC cables. One bipole will extend from Montreal, Canada, to Yonkers, New York. The other bipole will extend the same route from Montreal, Canada, to Yonkers, New York, but will continue another 66 miles to Bridgeport, Connecticut. Therefore, four HVDC cables will be located between Montreal, Canada, and Yonkers, New York, and two HVDC cables will be located between Yonkers, New York, and Bridgeport, Connecticut.

2.3 Proposed Project Construction Techniques

For the terrestrial portions of the proposed Project route, the underground cables will be buried via excavated trenches or Horizontal Directional Drilling (HDD) methods. For overland cable installation, the two bipoles (four cables) will require two trenches for installation. The minimum separation distance between the bipoles is approximately 12 feet. For portions of the overland routes that utilize a railroad right-of-way, the typical and preferred layout is to have one bipole (two cables) installed on either side of the railroad tracks. Further details of the cable installation methods and equipment are described below.

For underwater cable installation, the primary methods utilized for installation will be water-jetting with shoreline crossings completed by HDD. Where water-jetting is not possible, plowing or dredging will be used to bury the submarine cables. The minimum separation distance between submarine cables within each bipole is 6 feet and the minimum separation

distance between each bipole will range from 12 to 30 feet (depending on water depths). Therefore, the HVDC submarine cable route corridor will range from approximately 30 to 45 feet in width (including the width of the cables themselves) between Montreal, Canada, and Yonkers, New York (four cables) and will be approximately 15 feet between Yonkers, New York, and Bridgeport, Connecticut (two cables). Further details of the cable installation methods and equipment are described below.

2.3.1 Submarine Cable Installation

The proposed method of installation of the submarine HVDC cables is by the water-jetting embedment process. This method involves the use of a positioned cable-laying vessel and a hydraulically powered water-jetting device that simultaneously lays and embeds the submarine cable in one continuous trench.

In relatively shallow water depths (typically less than 15 feet), shallow draft vessels/barges, which typically use anchors for positioning, may be used for installation. It is anticipated that these vessels will carry spools of 6 to 7 miles. Deeper draft vessels equipped with dynamic positioning thrusters are proposed for deeper water locations. It is anticipated that these vessels will carry spools of 80 to 100 miles.

The primary installation vessel will be dynamically positioned, using thrusters. Dynamically positioned cable installation vessels do not contact or directly disturb the bottom; however, depending on navigation limitations along the route, it is possible that a tugboat-positioned vessel or an anchor-positioned vessel may be used for some of the submarine cable installation. An anchor-positioned vessel would propel itself along the route with forward winches while letting out on rear winches and the other lateral anchors holding the alignment during the installation. The four-to-eight-point mooring system would allow a support tug to move anchors, while the installation and burial proceeds uninterrupted on a 24-hour basis.

Water-jetting embedment methods for submarine cable installations are considered to be the most effective and least environmentally damaging when compared to traditional mechanical dredging and trenching operations. This method of laying and burying the cables simultaneously

ensures the placement of the submarine cable system at the target burial depth with minimum bottom disturbance, with much of the fluidized sediment settling back into the trench.

Water-jetting equipment uses pressurized water to fluidize sediments. The water-jetting device is typically fitted with hydraulic pressure nozzles located down the length of "swords" that create a direct downward and backward "swept flow" force inside the trench. This provides a down and back flow of re-suspended sediments within the trench, thereby "fluidizing" the *in situ* sediment column as it progresses along the predetermined submarine cable route such that the submarine cable settles into the trench under its own weight to the planned depth of burial. The water-jetting device's hydrodynamic forces do not work to produce an upward movement of sediment into the water column, since the objective of this method is to maximize gravitational replacement of re-suspended sediments within the trench, to bury or "embed" the cable system as it progresses along its route. The pre-determined deployment depth of the jetting swords (and adjustable hydraulics on the water-jetting device) controls the cable burial depth.

Cable burial can be performed by an independent or towed burial machine. The self-propelled water-jetting device moves forward by the reaction of the backward thrust of the hydraulic-jetting power that is fluidizing the soil and keeping the created trench open for the cable to sink into. The forward rate of progress is regulated by the varying types of soil and the water pressure applied through the jets. A towed skid/pontoon-mounted water-jetting device or wheeled, frame-mounted water-jetting device can be deployed and operated in conjunction with the cable-laying vessel where appropriate.

It is anticipated that installing each of the four cables to the required depth (a minimum of 3 feet of cover) in the sediments that are generally found along the proposed underwater cable route will require that the water-jetting device fluidize a pathway approximately 2 feet wide and 4 feet deep. Each cable will settle into the trench under its own weight.

The geometry of the "trench" is typically described as trapezoidal, with the width gradually narrowing with depth. Temporarily re-suspended *in situ* sediments are largely contained within the limits of the trench wall, with only a minor percentage of the re-suspended sediment traveling outside of the trench (more so for fine sediments than coarse). Any re-suspended sediments that leave the trench tend to settle out quickly in areas immediately flanking the trench, depending

upon the sediment grain size, composition, water currents, and the hydraulic jetting forces imposed on the sediment column necessary to achieve desired burial depths.

As the water-jetting device progresses along the route, the water pressure at the device nozzles will be adjusted as sediment types and/or densities change, to achieve the required minimum burial depth. A test trench may be preformed to ensure proper depth of burial. In the unlikely event that the minimum burial depth is not met during water-jetting embedment, additional passes with the water-jetting device or the use of diver-assisted water-jet probes will be utilized to achieve the required depth.

In certain small areas—typically transition areas between HDDs and cable trenches—a diver-operated hand jet may be used to bury the cable. In this process, a support vessel provides pressurized water through a hose with a nozzle that is maneuvered by a diver. The diver works the sediment under the cable to create a trench into which the cable settles. This method would be employed for short distances only, typically less than 100 feet.

For sections where water-jetting is not possible, "plowing" may be necessary. For the plowing technique, a trench is made for the cable by towing a plow, and the cable settles into the trench, either at the same time or in a subsequent pass of the cable-laying vessel. There are pre-lay and post-lay plows, depending on the needs of the Project. For a pre-lay plow, the cable is simultaneously fed into the trench as it is created by the plow. For a post-lay plow, the cable has already been laid, the plow is lowered on the bottom and the cable placed inside the plow device, which then embeds it into the bottom as the plow is pulled forward. In either situation, the plow is not self-propelled, but is instead tethered to a surface support vessel, which supplies the pulling power. Usually, the bottom sediment is allowed to naturally backfill the trench over the cable by slumping of the trench walls, wave action, or bed load transport of sediments. If the sediments are not likely to result in adequate backfill over the cable, a backfill plow can be used, which employs horizontal blades that capture some of the sediment pushed off to the sides during plowing and pulls it back into the trench over the cable.

While it is intended that the use of conventional underwater trench excavation methods will be minimized, there will be some locations where conventional dredging will be required. These circumstances may include instances where the cable route is located within an existing

navigation channel. In these locations, either a clam-shell dredge or a barge-mounted excavator will be used to pre-dredge a trench into which the cable will be laid. The trench will typically be over-excavated by approximately 20 percent to allow for slumping of trench sidewalls prior to cable installation. Trench spoil will be brought to the surface and placed on barges, either for re-use as backfill or for approved disposal. This work will most likely occur from spud barges, although anchor-moored or jack-up barges may also be employed, depending upon equipment availability and site conditions. A typical spud dredge barge will be equipped with three spuds, with one spud being a walk-away spud. The barge will have a crane, typically outfitted with a 6 to 9 cubic yard clam-shell bucket. Alternatively, the barge may have a track hoe excavator working off the deck of the barge, possibly with an extended boom for areas of deeper water. Once a segment of trench is excavated, cable will be laid and the clam-shell dredge or excavator will place sediment back into the trench.

In limited areas along the Project route, surficial geology or existing infrastructure (e.g., electric cables, gas pipelines, ferry cables) may not permit adequate cable burial depths within the lake/canal/river/seabed to ensure adequate cable protection. In these areas, the HVDC cables will be laid on the lake/canal/river/seabed with protective coverings, such as rip-rap or articulated concrete mats. Areas where this method may occur are at foreign pipeline or cable crossings, small unavoidable bedrock areas, and potentially in areas of contaminated sediments. In these locations, the plow or water-jetting device will be lifted off the bottom, moved forward past the obstacle, and then re-deployed to the bottom once safely across. In a separate activity, the cable laying on the sediment surface would be covered with sloping stone rip-rap or articulated concrete mats. Typically, this method will be used only for short distances.

Articulated concrete mats are made of small pre-formed blocks of concrete that are interconnected by cables or synthetic ropes in a two-dimensional grid, typically creating shapes ranging from 6 feet by 6 feet to 8 feet by 25 feet. The concrete mats are lifted off barges and lowered into the water over the cable using a crane. Positioning is monitored by divers. Rip-rap would be sized to remain in place under current and wave conditions expected at the site. Rip-rap would be lowered from a supply barge using either a clam-shell dredge or an excavator. Rip-rap thickness would be monitored by divers to prevent over- or under-placement of material.

Crossing of utilities owned by a third party, such as existing cables and pipelines, will require formal crossing agreements to be made. The design of the protection at these crossings will be subject to such agreements. Detailed discussions on methodologies and safety issues will be conducted with the owners of these infrastructures.

2.3.2 Underground (Terrestrial) Cable Installation

Engineering and environmental constraints were identified along portions of the waterway route initially evaluated; therefore, overland bypass routes were investigated. Investigations determined that the proposed Project route will bury HVDC cables along overland bypass routes around Locks C12, C11, C9 (there is no Lock C10), and the Upper Hudson River Dredging Project area. The HVDC cables will be buried within existing railroad rights-of-way located adjacent to the associated waterways along the proposed Project route, with the exception of the Lock C9 bypass, which utilizes NYSCC-owned land for cable installation/burial.

The underground portion of the Project route is located within or immediately adjacent to the existing Canadian Pacific Railroad (CP) and the CSX Transportation, Inc. (CSX) railroad rights-of-way. A minimum separation distance is required from the rails to the cables by each railroad, with CP requiring a minimum separation of 10 feet from the centerline of the outermost track to the cable trench and CSX requiring a minimum separation of 25 feet from the centerline of the outermost track to the cable trench. The typical and preferred layout is to have one bipole (two cables) installed on either side of the railroad tracks. With this layout, the limits of construction activity extend 15 feet beyond the required minimum setback of the railroads. This 15-foot area will include the area needed for excavation of the trench, installation of erosion and sediment control measures, installation of the two cables, and stockpiling of excavated material. In total, the CP construction corridor will amount to approximately 50 feet (25 feet on either side of the track) and the CSX construction corridor will amount to approximately 80 feet (40 feet on either side of the track). There are areas that will require different configuration and pose additional engineering challenges, such as steep slopes, environmentally sensitive areas, and existing structures.

Each of the four underground cables will require a number of joints and a flat pad will be installed underneath each joint for splicing activities. The number of joints will be kept to a

minimum and will be determined either by the maximum length of cable that can be transported in a single piece or by the maximum length of cable that can be pulled, whichever is the least. The jointing is performed in a jointing pit, with typical general dimensions for four cables being 30 feet long, 40 feet wide, and 7 feet deep. For land installation, typical segment lengths range from 0.5 to 0.1 miles. Once the joint has been made, there will be no signs at surface level, as will be the case for the whole cable installation. The following sections identify the general construction sequence for routine cable installation along the underground portion of the Project:

- Initial clearing operations (where necessary) and storm water and erosion control installation;
- Trench excavation;
- Cable installation;
- Backfilling; and
- Restoration and revegetation.

Initial clearing operations will include the removal of vegetation within the cable trench area, along with any temporary additional construction workspace (e.g., HDD workspace), either by mechanical or hand cutting. The cleared width within the right-of-way and temporary construction workspace will be kept to the minimum that will allow for spoil storage, staging, assembly of materials, and all other activities required to safely install the cable.

The typical trench will be up to 9 feet wide at the top and approximately 3 feet deep to allow for the proper depth and separation required for the burial of the cables. In general, the trench will be deep enough to provide for 3 feet of cover over the cable. The excavated material will be placed next to the trench. In normal terrain, where the soil consists of unconsolidated rock and earth, the trench will be excavated using rail-mounted equipment. When this is not possible, traditional excavation equipment will be used.

Based on review of soils and geologic maps of the Project area, shallow bedrock has the potential to be encountered along some portions of the land segment of the proposed Project route. Rock encountered during trenching will be removed using one of the following techniques. The technique selected is dependent on relative hardness, fracture susceptibility, and expected volume of the material. Techniques include:

- Conventional excavation with a backhoe;
- Hammering with a pointed backhoe attachment followed by backhoe excavation; or
- Blasting followed by backhoe excavation.

For the underground sections of the Project's route, two cables within each bipole system will typically be laid side-by-side (approximately 3 feet apart) in a trench approximately 3 feet deep. Once a pre-selected length of trench is excavated to the necessary depth and the base prepared, rollers will be placed in the bottom of the trench to facilitate pulling the cable into the trench. A cable attached to a winch at the opposite end of the trench from the cable spool will be attached to the cable and reeled in, pulling the cable down the length of the trench on the rollers. Depending upon the soil conditions on the bottom of the trench, the bottom of the trench may have some padding fill placed before pulling the cable into the trench. Once the cable segment is pulled down the length of the trench, it is moved off the rollers.

Given the need to schedule work with the railroad and the overall Project schedule, it is anticipated that cable installation activities will occur 24 hours per day/7 days per week in most areas, with nighttime shutdowns occurring in select sensitive receptor areas. This will require that nighttime lighting be used. To the extent possible, directed lighting will be employed when in residential areas to minimize lighting of areas outside of the workspace. In addition, the continual construction schedule will result in the operation of heavy machinery and equipment (e.g., generators, excavators, vehicle engines) during all hours of the day and night. Depending upon noise sensitivity of nearby areas, certain activities may be limited to daytime periods (e.g., blasting, if required).

During cable installation, it is anticipated that the majority of supplies and equipment will be transported along the cable route via the railroad. However, it will also be necessary, in certain instances or for certain components of the work, for vehicles to arrive and depart from work areas via local roadways. Workers may arrive at contractor yards or the right-of-way in pickup trucks, supplies may be delivered directly to the site, and equipment, such as dewatering pumps, generators, or excavators, may also need to access the site via local roads.

Subsequent to laying the cables, the trenches will be backfilled with low thermal resistivity material. Because the operation of the cables results in the generation of heat, and heat reduces

the electrical conductivity of the cables, it is important to backfill with this material to prevent heat from one cable affecting a nearby cable. There will be a protective concrete cover or a layer of weak concrete directly above the low thermal resistive backfill material. The whole assembly will have a marker tape placed 1 to 2 feet above the cables. Where two bipole transmission systems are present, two trenches will be required, and the bipoles will have a minimum separation of approximately 12 feet. The top of the trench may be slightly crowned to compensate for settling. In wetland areas, the segregated topsoil will be spread across the trench area.

In areas of wetlands or perched water tables, trench plugs or other methods to prevent draining of wetlands or surface waters down the trench will be used. In areas of wetland soils, the organic surface layer will be backfilled over the subsoil backfill to reestablish an adequate soil profile for wetland restoration objectives. Another component of the backfilling process that will be assessed and addressed is soil compaction. Soil compaction is a small concern if the trenching, stockpiling, cable installation, and backfilling is conducted from the railroad, as heavy equipment operation on the ground surface along the cable trenches will be minimal. In addition, location of the construction corridor within the railroad right-of-way (and not on adjacent fields or agricultural lands) further reduces the likelihood of soil compaction concerns.

A cleanup crew will complete the restoration and revegetation of the rights-of-way and temporary construction workspace. In conjunction with backfilling operations, any woody material and construction debris will be removed from the rights-of-way. The temporary construction area will be seeded with an approved seed mix for the area and allowed to revegetate naturally.

Permanent changes to vegetation cover are not anticipated except in limited areas where forested cover may be converted to a shrub community where the cables are installed outside of the existing portion of the right-of-way currently undergoing vegetation management. During operation of the Project, these areas will be managed to prevent the establishment of trees directly over the cables. Vegetation clearing will occur only if it is necessary to conduct repairs or maintenance along the transmission cables. The use of herbicides for construction and maintenance of the cables is not anticipated at this time.

Section 3
Alternatives

As the Project is not a "water dependent" activity[6] that is to be sited within waterbodies/waterways, the Guidelines require an alternatives analysis that compares the preferred project to the "no build" alternative and a minimum of three other alternatives.

During the process of developing the proposed Project, a range of alternatives were evaluated to determine the feasibility of the alternatives, the consistency of the alternatives with the Project's purpose and need, and the overall impacts of the alternatives. The evaluation identified alternatives that were infeasible or inconsistent with the Project's purpose and need, which include demand side management measurements, other new generation sources, a buried HVAC transmission system, and a no build alternative.

Several alternatives were evaluated and determined to be considered technically feasible and consistent with the Project's purpose and need, but deemed to be impractical and eliminated from further consideration. These alternatives include a submarine-only HVDC transmission system, a buried HVDC transmission system along roadway corridors, and an overhead or buried HVDC transmission system through the Adirondack Park.

The evaluation also identified and retained several alternatives to the proposed Project that were considered for further evaluation. These alternatives include two potential routes for overhead HVDC transmission systems and three routes for buried overland HVDC transmission systems. Although the No Build Alternative is inconsistent with the Project's purpose and need, pursuant to the requirements of the Guidelines, it is retained for the resource impact evaluation for the alternatives considered, which is presented in Section 4.0.

[6] Non-water-dependent projects do not need to be located in wetlands or other waters to fulfill their basic project purpose. For this Project, an overland alternative is possible.

3.1 Alternatives Considered Infeasible or Inconsistent with Project Purpose and Need

3.1.1 Demand Side Management

Energy conservation measures will play an increasing role in reducing future energy demand in the United States. As energy prices have increased in recent years, energy conservation has received increased attention. For example, the Energy Policy Act of 2005 included mandatory energy conservation standards. Further energy conservation would require additional legislative or regulatory incentives or mandates. Predicting the additional measures that policymakers or end users might take would be speculative and beyond the scope of this analysis. However, additional energy conservation would almost certainly be long term and beyond the timeframe of the needs to be satisfied by the Project.

Energy conservation through demand side management practices is achieved over time and is not considered an immediate solution to transmission congestion or energy needs in a region. Therefore, demand side management programs are considered to be long term and beyond the timeframe of the region's immediate transmission and generation needs. In addition, demand side management is not a practical alternative as it is difficult to predict how its implementation will affect overall energy use. For example, New York's "45 by 15" program originally called for energy efficiency to account for 15 percent of the overall goal, but the New York State Energy Plan notes that, even with the considerable achievements made to date in the state's end-user efficiency programs, meeting the 15 percent objective will require nearly a five-fold increase in annual energy savings by 2015 (State of New York Energy Planning Board 2009).

The Project's purpose is to provide clean and renewable power to the load centers in New York and Connecticut that is needed in addition to demand side management measures. Therefore, demand side management is not considered a sole solution to the region's transmission congestion and additional generation needs, but rather part of the overall solution.

3.1.2 Other New Generation Sources

In New York State, power generation resources have been relatively static since 2000, with the exception of New York City and Long Island. In these areas, approximately 2,900 MW of new capacity has been added, primarily consisting of expensive gas- and oil-fired generating facilities. In the New England Independent System Operator (NE-ISO), recent new generation has consisted of mostly gas-fired generating facilities, with 66 percent of the 478 MW of new generation brought on line in 2009 (NE-ISO 2010). In the near term, it is estimated that 2,289 MW of new capacity will come on line by 2011 in New York and 2,378 MW by 2014 in New England. The majority of this proposed generation would be fossil fuel generation (natural gas), accounting for 91 percent of the new generation in New York and 63 percent in New England (LEI 2010).

In the New York ISO (NY-ISO) interconnection queue, currently there are 79 proposed renewable energy projects, representing 9,300 MW of potential generation from wind, solar, hydro, pumped storage, wood, solid waste, methane, and energy storage (NY-ISO 2010). The NE-ISO interconnection queue has 72 proposed renewable energy projects, representing 8,730 MW of potential generation (NE-ISO 2010). However, many of the projects in the queues will likely be withdrawn, will not be constructed by the proposed timeline, or will change the proposed generating capacity, as evidenced by the 58 renewable energy projects, equaling 10,000 MW, withdrawn from the NY-ISO queue since 2005 (NY-ISO 2010).

Proposed renewable projects in Connecticut include the biomass Plainfield renewable energy project (38 MW), and the Watertown renewable power biomass project (30 MW). Proposed projects in the vicinity of southern New York City include a 30-MW solar facility in Suffolk County, and the 700-MW Long Island Power Authority/ConEdison offshore wind project to be located offshore from Suffolk County in the Atlantic Ocean. However, each of these projects has their own environmental impacts and there can be no presumption that these impacts are less significant than those of the proposed Project. Therefore, other new generation sources in the New York City and Connecticut regions are not anticipated to provide the clean and renewable energy capacity, increased grid reliability, or transmission congestion solutions comparable to the proposed Project.

3.1.3 Buried HVAC Transmission System

CHPEI considered the construction of a HVAC underwater/underground transmission system to connect clean and renewable sources of electric generation in eastern and central Canada and the United States with load centers in the New York City and southwestern Connecticut regions. However, HVAC cables have a steady-state charging current and generate considerable heat. Therefore, burial of HVAC lines would require supplementary cooling, making HVAC unsuitable for long underground lines. These technological limits of HVAC systems do not permit underwater/underground transmission over the significant distances required for this Project (greater than 370 miles in length). A buried HVAC transmission system alternative is considered infeasible.

3.1.4 No Build Alternative

Under the No Build Alternative, the Project would not be constructed. Therefore, to meet projected electricity needs in New York City and Connecticut, a) existing generation facilities would need to increase their power output, b) new transmission options would need to be installed, and/or c) new generating facilities would need to be brought on line. Other transmission route alternatives are discussed below and new generating facilities were considered inconsistent with the Project's purpose and need (see Section 3.1.2).

In terms of existing generation, operating capacity in New York State totals 38,189 MW, with 9,923 MW of the generating capacity located in New York City. The majority of New York's existing generation portfolio is composed of gas- and oil-fueled facilities, which accounts for approximately 55 percent of the total installed capacity in the state. The vast majority of these gas and oil facilities tend to be older; about 79 percent of them were built before 1980, and therefore are relatively inefficient. Generating capacity in New England totals about 31,000 MW, with 22 percent generation located in Connecticut. New England's existing generation portfolio is also dominated by gas and oil, accounting for approximately 63 percent of the system's capacity. As in New York, the New England gas and oil plants tend to be older, with about half built before 1980, and thus relatively inefficient (LEI 2010).

The No Build Alternative, which relies on increased generation from existing sources, is considered inconsistent with the Project's purpose and need and should be eliminated for further consideration. However, pursuant to the requirements of the Guidelines, the No Build Alternative is included in the resource impact evaluation for the alternatives considered, which is presented in Section 4.0.

3.2 Alternatives Considered But Eliminated

3.2.1 Submarine-only HVDC Transmission System

During initial Project planning activities, CHPEI proposed the construction of an HVDC transmission system that was located almost entirely within waterways between Montreal, Canada, and the New York City/southwestern Connecticut regions, with a single overland bypass at the Federal Dam at Troy. During consultations with state and federal agencies to discuss the Project, the NYSCC staff indicated that the NYSCC would prohibit HVDC cable installation through or under the existing lock systems in the Champlain Canal. Therefore, investigations were performed to identify terrestrial bypass routes to circumvent the Champlain Canal lock system facilities. Additionally, USEPA staff stated that HVDC cable installation could not occur within the Upper Hudson River PCB Dredging Project area prior to completion of the dredging activities. Based on the dredging schedule of the Upper Hudson River PCB Dredging Project, it was determined that HVDC cable installation in this portion of the Champlain Canal/Hudson River was not feasible within the Project planning window. Therefore, CHPEI identified a terrestrial bypass route to circumvent the Upper Hudson River PCB Dredging Project area.

Based on the aforementioned information, CHPEI determined that a submarine-only HVDC cable route was infeasible, and this option was eliminated from further consideration.

3.2.2 Buried Overland HVDC Transmission System within Roadway Rights-of-Way

CHPEI considered an overland alternative that would utilize existing roadway corridors that connect Canada with New York City and southwestern Connecticut. In order to avoid HVDC cable installation along corridors that transect numerous other roadways and other developed

areas (such as neighborhoods and cities), CHPEI focused its evaluation on major highway routes extending north to south through New York, to the extent feasible. Interstate I-87 was identified as the most direct and continuous major roadway corridor within eastern New York between Canada and New York City. From New York City, the overland route would follow the roadway corridor from I-87 to I-287 and I-95 toward Bridgeport, Connecticut.

However, this alternative was considered extremely difficult based on the current policies of both New York State and Connecticut that prohibit the use of roadway corridors for the installation of either buried or overhead transmission lines. The State of New York has an accommodation policy with the Federal Highway Administration that prohibits linear co-location of utility facilities, other than telecommunications, with the highway right-of-way unless an exception is granted. It is the policy of the Connecticut Department of Transportation not to allow construction of new lines within and parallel to the right-of-way of any controlled access highway (Northeast Utilities and United Illuminating, 2003). Therefore, a buried HVDC transmission system along existing roadway rights-of-way through New York and Connecticut is considered impractical and has been eliminated from further evaluation.

3.2.3 Overhead or Buried HVDC Transmission System - Adirondack Park Route

CHPEI evaluated existing utility rights-of-way between Montreal, Canada, and the New York City and southwestern Connecticut regions. In an effort to minimize potential impacts of a new transmission line, CHPEI identified an existing transmission corridor that was the most direct (shortest) route from Montreal, Canada, to New York City and southwestern Connecticut. An existing right-of-way currently extends north to south along the eastern portions of New York State; however, it is not a continuous right-of-way. The route identified would begin near Hydro-Québec TransÉnergie's 765/315-kilovolt (kV) Hertel substation, located southeast of Montreal. From Montreal, the route would be sited along an existing 765-kV transmission line southwest past the New York Power Authority's (NYPA) substation in Massena, New York. The route would then extend east from Massena along an existing 230-kV transmission line toward the Willis substation. Continuing south of the Willis substation, the route would follow a series of 115-kV lines south toward a substation in Lake Placid within the Adirondack Park.

There are no significant transmission line corridors between the Lake Placid substation and the Barton Brook substation within the Adirondack Park. Therefore, this route would require construction of a new transmission line right-of-way through the New York State Forest Preserve in order to establish a continuous transmission line right-of-way to New York City. CHPEI would need to construct a new section of transmission line between Lake Placid and the Barton Brook substation.

From Barton Brook, the route would be sited along the existing 115-kV transmission line south toward the Pleasant Valley substation. One bipole would continue south past Pleasant Valley along a 345-kV transmission line to a converter station located near the Sherman Creek substation in Manhattan, and AC cables would transmit electricity from the converter station to the electric grid via the Sherman Creek substation. The remaining bipole would continue south along a 345-kV transmission line to a converter station located near the Singer substation in Bridgeport, Connecticut, and AC cables would transmit electricity from the converter station to the electric grid via the Singer substation.

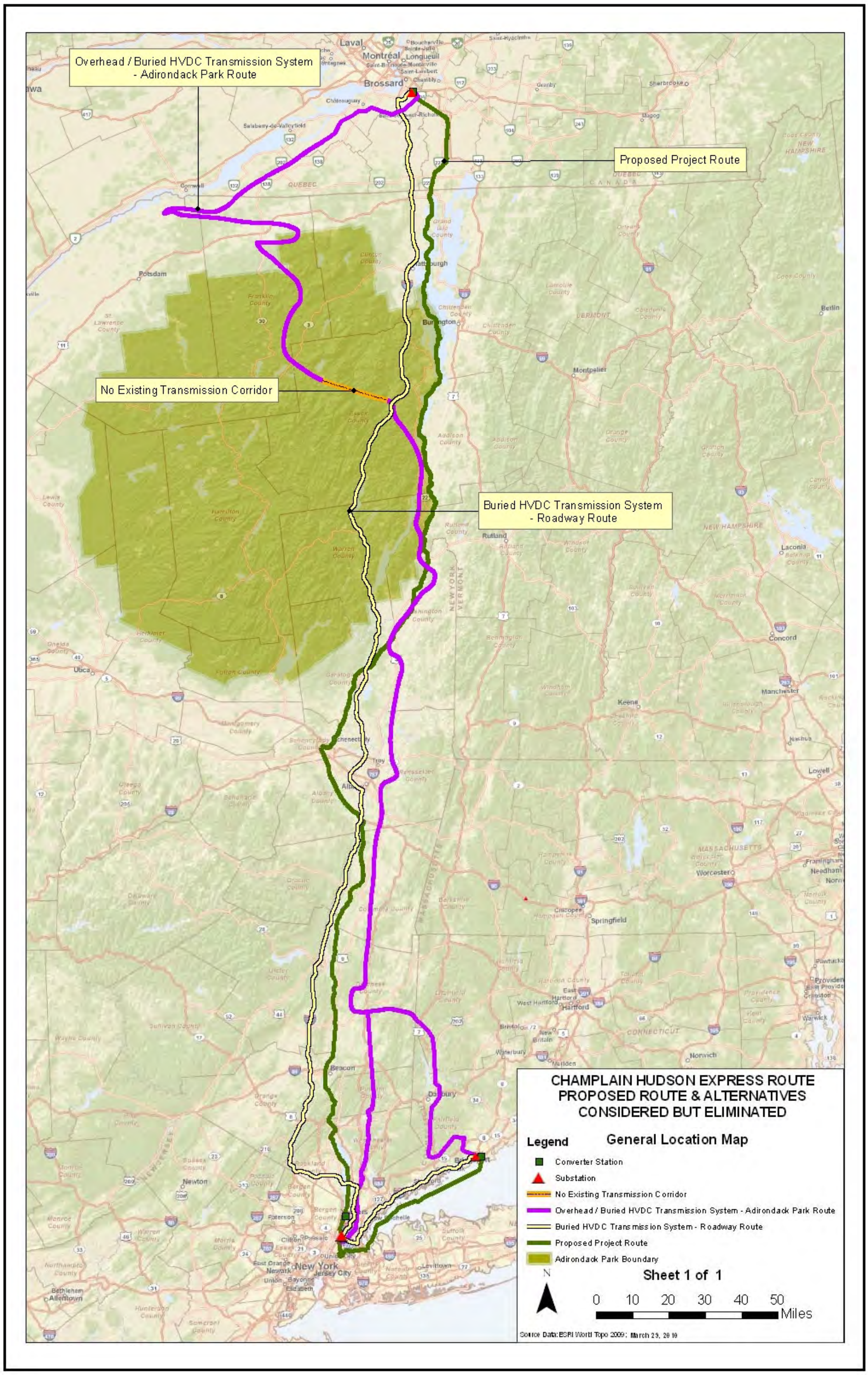
This alternate route poses major siting challenges. A significant portion of this alternative passes through the New York State Forest Preserve, a region protected as “forever wild” by Article XIV of the New York State Constitution. Article XIV prohibits the removal or destruction of timber and forbids the lease, sale, or exchange of any land within the Forest Preserve. Although a majority of this route would be sited along existing 115-kV transmission line rights-of-way within the Forest Preserve, these rights-of-way would need to be expanded to accommodate the 345-kV line. This process would require obtaining the additional land rights necessary to permit construction along wider rights-of-way. For those areas where no existing transmission infrastructure currently exists, it would also be necessary to create an entirely new right-of-way through the Forest Preserve. Therefore, this alternative would require cutting or removing timber and vegetation along the existing, as well as newly established, rights-of-way to facilitate construction and maintenance activities.

Construction of this alternative would require an amendment to the New York State Constitution to obtain the necessary rights-of-way and to permit timber removal and vegetation management activities along this transmission cable corridor. The constitutional amendment process is

lengthy, requiring 1) passage of a concurrent resolution in the legislature authorizing the measure to be put on a state-wide ballot, 2) passage of the identical resolution by a newly elected legislature after an intervening general election, and 3) approval by the voters of the state at a general election (NYPA 2008). Given the scope of this alternative, it is extremely unlikely that such an amendment would even be obtainable. Consequently, the Forest Preserve siting issue appears to make this alternative extremely difficult and impractical and it has been eliminated from further consideration.

The proposed Project route and alternatives considered, but eliminated, are shown in Figure 3-1.

FIGURE 3-1
CHAMPLAIN HUDSON EXPRESS PROJECT PROPOSED ROUTE
AND ALTERNATIVES CONSIDERED, BUT ELIMINATED



3.3 Alternatives Considered for Further Evaluation

For this analysis, alternatives to the proposed Project were considered and include the following: a No Build Alternative, Overhead HVDC Transmission System Alternatives utilizing exiting transmission corridors, and Buried Overland HVDC Transmission System Alternatives utilizing existing transmission corridors or existing railroad corridors.

For purposes of this analysis, CHPEI assumes HVDC technology to be the preferable technology for transmission lines. This assumption is based in part on the relationship between traditional AC transmission lines and electromagnetic fields (EMF). An EMF is produced by almost any electrically charged object. It is the combination of an electrical field (created by voltage or electrical charge) and a magnetic field (created by electrical current). AC transmission lines are considered a source of EMF and there has been considerable debate over the risks associated with exposure to magnetic fields generated by these lines. However, unlike AC lines, HVDC transmission cables are installed in pairs, where current has no frequency and is equal and opposite in direction. As a result, DC cables are non-radiant and the static EMF is generally considered to be negligible.

In addition to lower EMFs, DC lines also provide better control of the power flow along the system. Such control enables integration with Smart Grid technologies and provides black start capabilities that could not be achieved with AC technology. Although the infrastructure and construction techniques required for both overhead HVAC and HVDC transmission systems is generally similar (and the potential impacts of construction and operation of these lines is therefore similar), this analysis only focuses specifically on overhead HVDC transmission systems for the reasons discussed above**.**

3.3.1 Overhead Transmission System Alternatives

CHPEI analyzed several potential routes for overhead transmission systems linking Montreal, Canada, with New York City and southwestern Connecticut. This review focused on two separate transmission cable routes that would utilize existing overhead transmission corridors in New York, Connecticut, Massachusetts, and Vermont. Two primary factors were considered in locating these alternative routes:

- Use of areas where there was previous disturbance and existing infrastructure in order to minimize potential environmental impacts; and
- Use of existing transmission lines to provide a complete or partial link between the selected substations in Montreal and New York City and Bridgeport.

The overhead transmission system alternatives considered in this analysis would all utilize a bipolar configuration, consisting of two conductors per pole (one positive and one negative) and a ground wire. The systems would be designed to operate at a nominal voltage of ±345-kV HVDC and would utilize non-specular (non-reflective) conductors bundled in a horizontal configuration. In general, conductors would have a spacing of approximately 18 inches apart, and each conductor would have an overall diameter of approximately 1.75 inches. A metallic return conductor with a fiber optic core would be installed in the shield wire position above the electrical pole conductors to provide protection against lightning strikes. The return conductor would also provide a communication path between converter stations. A separate shield wire may be necessary on towers with a horizontal arrangement.

Several different transmission tower configurations may be utilized for these overhead alternatives. In general, the potential transmission tower types can be defined as "lattice" or "monopole" designs. Lattice towers are constructed of galvanized steel and are assembled on site. These freestanding towers are widely used as transmission line support structures across the United States. Lattice towers have a relatively wide base, and their design requires greater clearance along rights-of-way. Their larger size and framework design make lattice towers suitable for areas where the visual/aesthetic impacts of tower installation are not a significant concern and to locations where adequate right-of-way easements can be acquired. The modular design of lattice towers makes them an economical choice for large-scale transmission lines linking distant endpoints.

In contrast to the lattice design, monopole towers have a single-shaft, tubular structure. Because of their smaller footprint, monopole towers are well-suited to right-of-way locations where space is limited. Overall, monopole towers are less obtrusive and offer aesthetic benefits over conventional lattice tower designs. Notwithstanding these benefits, monopole towers can be cost

prohibitive, and their use would be selective along the transmission line rights-of-way considered in this analysis.

The specific height and design of each monopole or lattice tower would be determined by the angle of the conductor bundles, the span between towers, and the topography. In general, the lattice or monopole steel support structures would be expected to vary from approximately 65 to 135 feet in height. Spans would range from 600 to 700 feet between monopole towers and 800 to 1,000 feet between lattice towers.

Although the overhead alternatives considered in this analysis utilize existing transmission line rights-of-way, many of the existing corridors utilized are currently for 115-kV to 138-kV transmission lines. A review of existing and proposed projects indicates that typical widths of existing 115-kV rights-of-way are approximately 90 to 130 feet wide. In comparison, 345-kV rights-of-way are typically about 150 feet wide. Additionally, pole heights for 115-kV transmission lines typically range from 55 to 80 feet; whereas pole heights for 345-kV transmission lines typically range from 65 feet to 135 feet, but can require heights more than 150 feet high. Additionally, it is not anticipated that the existing transmission line owner would agree to allow the Project's transmission infrastructure within their rights-of-way or on their towers. Therefore, construction of a new 345-kV line for the Project would require expansion of the existing rights-of-way resulting in additional land acquisitions and vegetation removal to facilitate a construction work area and provide adequate clearance for new conductors. It is also anticipated that the Project would require the installation of new transmission towers and associated access roads.

The transmission line clearing for construction purposes is dependent on the type of tower, topography, span, location, existing utility rights-of-way, and other factors. Based on similar proposed HVDC overhead transmission systems, the transmission clearing could range from 30 to 75 feet on either side of the transmission line centerline (60 to 150 feet in total). The precise rights-of-way would vary along sections of the lines. Vegetation-clearing activities along the rights-of-way may include cutting, grubbing, or other mechanized/hand-clearing techniques. In addition to this transmission line right-of-way, "danger trees" that could potentially damage the conductors would be trimmed, topped, or removed adjacent to the rights-of-way. Vegetation

management practices would continue after construction to ensure that the rights-of-way are maintained and that trees posing a threat of danger to the line are eliminated.

Access roads, lay-down areas, wire-pulling sites, and turnaround areas would also be required along the transmission line to facilitate construction equipment and vehicles. These areas would need to be cleared of vegetation, and additional material may be deposited to ensure that access roads remain passable throughout construction. Trenching may also be necessary along the margins of access roads to avoid rutting.

Each transmission tower location would require a concrete foundation to ensure structural stability of the towers. The specific foundation requirements would be dependent on the geotechnical conditions at each tower location. Foundation size and depth would be decided based on the type of tower structure, load bearing capacity of soils, and other factors. For installation in areas of rock outcroppings, anchor bolts may be installed and a concrete pad poured over and around these anchors. At other locations, steel caissons may be necessary to create a dry work area that will allow concrete to be poured. Combinations of these techniques may be utilized to install foundations in areas where rock is encountered below grade.

3.3.1.1 Overhead HVDC Transmission System Alternative 1 - Central New York Route

Description

CHPEI evaluated a potential overhead HVDC transmission system that would utilize existing utility rights-of-way extending between Montreal, Canada, and the New York City and southwestern Connecticut regions. From Montreal, the transmission line would follow an existing 765-kV transmission line southwest toward the substation in Massena, New York. Overhead Alternative 1 would then extend south along an existing 765-kV transmission line corridor past NYPA's substation in Marcy. From Marcy, Overhead Alternative 1 would be sited along a 345-kV transmission corridor continuing toward the Pleasant Valley substation in Dutchess County, New York**.**

One bipole would continue south past the Pleasant Valley substation along a 345-kV transmission line to a converter station located near the Sherman Creek substation in Manhattan. AC cables would transmit electricity from the converter station to the electric grid via the

Sherman Creek substation. The total length of the central New York route is approximately 434 miles from the Hertel substation near Montreal, Canada, to the Sherman Creek substation in Manhattan, New York.

The remaining bipole would continue south along a 345-kV transmission line corridor to a converter station located near the Singer substation in Bridgeport, Connecticut. AC cables would transmit electricity from the converter station to the electric grid via the Singer substation. The total length of the central New York route is approximately 447 miles from the Hertel substation near Montreal, Canada, to the Singer substation in Bridgeport, Connecticut.

Siting Analysis

While Overhead Alternative 1 avoids siting complications associated with the New York State Forest Preserve, the corridor considered for this alternative is considerably longer than the proposed Project route[7]. Additionally, Overhead Alternative 1 would be sited along major transmission corridors in New York State and Connecticut that traverse densely populated areas. Land acquisition to facilitate construction and maintenance along the right-of-way would pose significant challenges and would be cost prohibitive. It is very unlikely that the necessary right-of-way could be acquired, particularly in population centers such as New York City and Norwalk, Connecticut, where land uses are highly developed. The current real estate values and existing commercial, residential, and industrial development in these areas makes land acquisition extremely difficult. The additional costs and labor expenses associated with this alternate route make this alternative financially impractical.

The environmental impacts of a new overhead HVDC transmission system following a similar alignment were recently evaluated in association with the New York Regional Interconnect Project (NYRI). As a result of the analysis and public opposition to the line, the project was subsequently abandoned. CHPEI anticipates that Overhead Alternative 1 would encounter similar public opposition. Therefore, for the reasons discussed above, CHPEI considers this alternative to be impracticable. Although considered impractical, Section 4.0 of this document

[7] Overhead Alternative 1 is 80 miles longer than the proposed Project route from the Hertel substation to the Sherman Creek substation in Manhattan, New York. Overhead Alternative 1 is 27 miles longer than the proposed Project route from the Hertel substation to the Singer substation in Bridgeport, Connecticut.

provides information regarding the environmental and other resource impacts of this alternative to demonstrate that it is not the LEDPA to the proposed Project.

3.3.1.2 Overhead HVDC Transmission System Alternative 2 - New England Route Alternative

Description

CHPEI evaluated another potential overhead HVDC transmission system that would utilize existing utility rights-of-way extending between Montreal, Canada, and the New York City and southwestern Connecticut regions. From Montreal, the transmission line would be sited along an existing 765-kV transmission line that extends northeast toward the Saint Césaire substation. Overhead Alternative 2 would follow a 115-kV transmission line corridor that continues south from the substation to the U.S./Canada border. At the international border, Overhead Alternative 2 would be sited along an existing 765-kV transmission line that extends south toward the Highgate substation in Vermont. Continuing past the Highgate substation, this alternative would follow an existing 115-kV transmission line south toward the New Haven substation in Vermont. Overhead Alternative 2 would be sited along a series of existing 765-kV lines that extend south of the New Haven substation to the Northfield Mountain substation near Northfield, Massachusetts.

One bipole would continue west along an existing 765-kV transmission line extending from Northfield Mountain toward the Reynolds substation near Albany, New York. The route would then continue south following a 115-kV transmission line toward the Pleasant Valley substation. Past the Pleasant Valley substation, this alternative would be sited along a 345-kV transmission line to a converter station located near the Sherman Creek substation in Manhattan. AC cables would transmit electricity from the converter station to the electric grid via the Sherman Creek substation. Overhead Alternative 2 is approximately 455 miles from the Hertel substation near Montreal, Canada, to the Sherman Creek substation in Manhattan, New York.

The remaining bipole would continue south past the Northfield Mountain substation along an existing 765-kV line toward the Manchester substation located near Hartford, Connecticut. From Hartford, the route would be sited along an existing 765-kV line toward the Torrington Terminal substation and then south to a converter station located near the Singer substation. AC cables

would transmit electricity from the converter station to the electric grid via the Singer substation, in Bridgeport, Connecticut. Overhead Alternative 2 is approximately 419 miles from the Hertel substation near Montreal, Canada, to the Singer substation in Bridgeport, Connecticut.

Siting Analysis

Overhead Alternative 2 poses several siting complications. The route associated with this alternative follows a circuitous route south and is considerably longer than the proposed Project route[8]. The costs associated with land acquisition, permitting, clearing, and transmission towers are anticipated to be significantly higher and render Overhead Alternative 2 financially impractical. The northern portion of this alternative crosses steep and rugged, mountainous terrain that poses engineering challenges. The potential aesthetic and visual impacts of constructing a new overhead transmission system in the scenic mountains of northern Vermont are also likely to create public opposition that would likely prevent Overhead Alternative 2 from progressing. This region is a major tourist destination and is home to ski resorts that provide substantial contributions to the state's economy. New overhead transmission infrastructure would mar the viewshed and detract from the aesthetic quality of the region.

As with the other overhead alternative considered in this analysis, Overhead Alternative 2 would require land acquisition and timber cutting/vegetation removal to accommodate the larger rights-of-way. These activities are likely to encounter significant public opposition, particularly in Vermont and Massachusetts on the basis that, while neither Vermont nor Massachusetts would receive the direct benefits of electricity transmitted by this line, the construction of a new overhead transmission system would have significant environmental impacts in these states.

Overhead Alternative 2 would encounter additional siting obstacles toward the population centers located along the southern section of the alignment. Land acquisition to facilitate construction and maintenance along the rights-of-way would pose significant challenges and would be cost prohibitive. It is very unlikely that the necessary rights-of-way could be acquired, particularly in densely populated areas near New York City and Hartford, Connecticut. The

[8] Overhead Alternative 2 is approximately 101 miles longer than the proposed Project route from the Hertel substation to the Sherman Creek substation in Manhattan, New York. Overhead Alternative 2 is approximately the same distance as the proposed Project route from the Hertel substation to the Singer substation in Bridgeport, Connecticut.

current real estate values and existing commercial, residential, and industrial development in these areas makes land acquisition extremely difficult. Although considered impractical, Section 4.0 of this document provides information regarding the environmental impacts of this alternative to demonstrate that it is not the LEDPA to the proposed Project.

3.3.2 Buried Overland HVDC Transmission System Alternatives

CHPEI evaluated several potential alternatives for the overland burial of HVDC transmission cables extending between Canada and the New York City/southwestern Connecticut regions. The evaluation focused on utilizing existing railroad rights-of-way and existing overhead transmission rights-of-way. Two primary factors were considered in locating these alternatives:

- Use of areas where there was previous disturbance and existing infrastructure in order to minimize potential environmental impacts; and
- Use of existing transmission lines to provide a complete or partial link between the selected substations in Montreal and New York City and Bridgeport.

For purposes of this analysis, it is assumed that HVDC technology is the only preferred technology for long-distance, buried transmission lines. As described in Section 3.1.3 of this analysis, HVAC technology is not suitable for long-distance underwater/underground transmission cables.

The Buried Overland Route cable technology consists of XLPE HVDC cables. The XLPE land cables are solid state cables that contain no fluid. Each land cable is approximately 4 inches in diameter and weighs approximately 29 kg/m. The XLPE cables are made up of several layers consisting of a conductor, insulation, sheath, and outer serving. At average burial depths (3 feet), the maximum ambient temperature for the cable buried in the soil at depth is 20°C.

The 2,000-MW transmission system consists of two bipoles. Each bipole has two HVDC cables. Therefore, two HVDC cables will be located between Montreal, Canada, and the New York City metropolitan area, and two HVDC cables will be located between Montreal, Canada, and southwestern Connecticut.

On land, the minimum separation distance between cables within each bipole ranges from 1.7 to 3 feet and the minimum separation distance between each bipole ranges from 12 to 16 feet.

The construction methods for installing underground HVDC cables are described in Section 2.3.2 of this document. CHPEI anticipates that the Buried Overland Alternatives described in the following sections would employ the same technological approach and methodologies.

3.3.2.1 Buried Overland HVDC Transmission System Alternative 1 - Central New York Route

Description

CHPEI evaluated a potential buried overland HVDC transmission system that would utilize existing utility rights-of-way extending between Montreal, Canada and the New York City and southwestern Connecticut regions. Buried Overland Alternative 1 would follow the same alignment as Overhead Alternative 1 described in Section 3.3.1.1 of this document. From Montreal, the transmission line would follow an existing 765-kV transmission line southwest toward the substation in Massena, New York. As with the overhead alternative, this route would be sited along existing transmission line rights-of-way that extend south through central New York State toward NYPA's Marcy substation, near Utica. Continuing south of Utica, Buried Overland Alternative 1 would follow existing transmission line corridors toward the New York City and southwestern Connecticut.

One bipole would continue south past the Pleasant Valley substation along a 345-kV transmission line to a converter station located near the Sherman Creek substation in Manhattan. AC cables would transmit electricity from the converter station to the electric grid via the Sherman Creek substation.

The remaining bipole would continue south along a 345-kV transmission line to a converter station located near the Singer substation in Bridgeport, Connecticut. AC cables would transmit electricity from the converter station to the electric grid via the Singer substation.

Siting Analysis

Similar to Overhead Alternative 1, Buried Overland Alternative 1 avoids siting complications associated with the New York State Forest Preserve. Additionally, the corridor considered for

this buried overland alternative is considerably longer than the proposed Project route contributing to additional costs and labor expenses making this alternative financially impractical[9]. Buried Overland Alternative 1 would also be sited along major transmission corridors in New York State and Connecticut that traverse densely populated areas. Although existing rights-of-way would be utilized, additional land would need to be acquired to facilitate construction and maintenance along the buried transmission rights-of-way. Such acquisitions would pose significant challenges and would be cost prohibitive. It is very unlikely that the necessary rights-of-way could be acquired, particularly in population centers such as New York City and Connecticut. The current real estate values and existing commercial, residential, and industrial development in these areas makes land acquisition extremely difficult.

While Buried Overland Alternative 1 would avoid the need to construct transmission towers similar to those proposed by NYRI, the need to acquire land for vegetation clearing and access road construction along this corridor would likely face stiff public opposition. Therefore, for the reasons discussed above, CHPEI considers this alternative to be impracticable. Although considered impractical, Section 4.0 of this document provides information regarding the environmental impacts of this alternative to demonstrate that it is not the LEDPA to the proposed Project.

3.3.2.2 Buried Overland HVDC Transmission System Alternative 2 - New England Route

Description

CHPEI evaluated another potential overland HVDC transmission system that would utilize existing utility rights-of-way extending between Montreal, Canada, and the New York City and southwestern Connecticut regions. Buried Overland Alternative 2 would follow the same alignment as the Overhead Alternative 2 described in Section 3.3.1.2 of this document. Buried Overland Alternative 2 would be sited along existing transmission corridors extending south through Vermont, Massachusetts, and Connecticut.

[9] Overhead Alternative 1 is 80 miles longer than the proposed Project route from the Hertel substation to the Sherman Creek substation in Manhattan, New York. Overhead Alternative 1 is 27 miles longer than the proposed Project route from the Hertel substation to the Singer substation in Bridgeport, Connecticut.

One bipole would continue west along an existing 765-kV transmission line extending past the Northfield Mountain substation in Massachusetts toward the Reynolds substation near Albany, New York and then follow a 115-kV transmission line south toward the Pleasant Valley substation. From Pleasant Valley, this alternative would be sited along a 345-kV transmission line to a converter station located near the Sherman Creek substation in Manhattan. AC cables would transmit electricity from the converter station to the electric grid via the Sherman Creek substation.

The remaining bipole would continue south past the Northfield Mountain substation along an existing 765-kV transmission line toward the Manchester substation located near Hartford, Connecticut. Continuing south of Hartford, this alternative would be sited along an existing 765-kV transmission line toward the Torrington Terminal substation and then south to a converter station located near the Singer substation. AC cables would transmit electricity from the converter station to the electric grid via the Singer substation in Bridgeport, Connecticut.

Siting Analysis

Buried Overland Alternative 2 poses several siting complications. As with Overhead Alternative 2, Buried Overland Alternative 2 follows a circuitous route south and is considerably longer than the proposed Project route.[10] The significantly higher construction and labor costs render Buried Overland Alternative 2 financially impractical. The northern portion of this alternative crosses steep and rugged, mountainous terrain that poses engineering challenges. The potential aesthetic and visual impacts of expanding existing utility rights-of-way and building access roads in the scenic mountains of northern Vermont are also likely to create public opposition that would likely prevent Buried Overland Alternative 2 from progressing. This region is a major tourist destination and is home to ski resorts that provide substantial contributions to the state's economy. Expanding existing rights-of-way would mar the viewshed and detract from the aesthetic quality of the region.

[10] Overhead Alternative 2 is approximately 101 miles longer than the proposed Project route from the Hertel substation to the Sherman Creek substation in Manhattan, New York. Overhead Alternative 2 is approximately the same distance as the proposed Project route from the Hertel substation to the Singer substation in Bridgeport, Connecticut.

As with the other overhead and overland alternatives considered in this analysis, Buried Overland Alternative 2 would require land acquisition and timber cutting/vegetation removal to accommodate the larger right-of-way and new access roads. These activities are likely to encounter significant public opposition, particularly in Vermont and Massachusetts on the basis that, while neither Vermont nor Massachusetts would receive the benefits of electricity transmitted by this line, the construction of a new overland transmission system would have significant environmental impacts in these states.

Similar to Overhead Alternative 2, Buried Overland Alternative 2 would encounter additional siting obstacles in the vicinity of the urban population centers located along the southern section of the alignment. Land acquisition to facilitate construction and maintenance along the rights-of-way would pose significant challenges and would be cost prohibitive. It is very unlikely that the necessary rights-of-way could be acquired, particularly in densely populated areas near New York City and Connecticut. The current real estate values and existing commercial, residential, and industrial development in these areas makes land acquisition extremely difficult. Although considered impractical, Section 4.0 of this document provides information regarding the environmental impacts of this alternative to demonstrate that it is not the LEDPA to the proposed Project.

3.3.2.3 Buried Overland HVDC Transmission System Alternative 3 - Railway Route

Description

CHPEI also considered a buried overland alternative that would utilize existing railroad corridors linking upstate New York with New York City and southwestern Connecticut. CHPEI identified a continuous railroad corridor along the eastern portion of New York. The route follows the CP railroad lines extending along the western shore of Lake Champlain and the Champlain Canal from Canada to Schenectady. In Schenectady, the CP Railroad continues west and intersects with the CSX railroad lines. The route follows the CSX railroad and continues south along the western shore of the Hudson River toward New York City. In the vicinity of Poughkeepsie where the Hudson River narrows, the HVDC cable route would exit the CSX railroad right-of-way and cross beneath the Hudson River to the eastern shore. One bipole would follow the Metropolitan Transportation Authority Metro-North Commuter Railroad Co. (MNCR) right-of-

way into New York City. The Buried Overland Alternative 3 is approximately 360 miles from the Hertel substation near Montreal, Canada, to the Sherman Creek substation in Manhattan, New York.

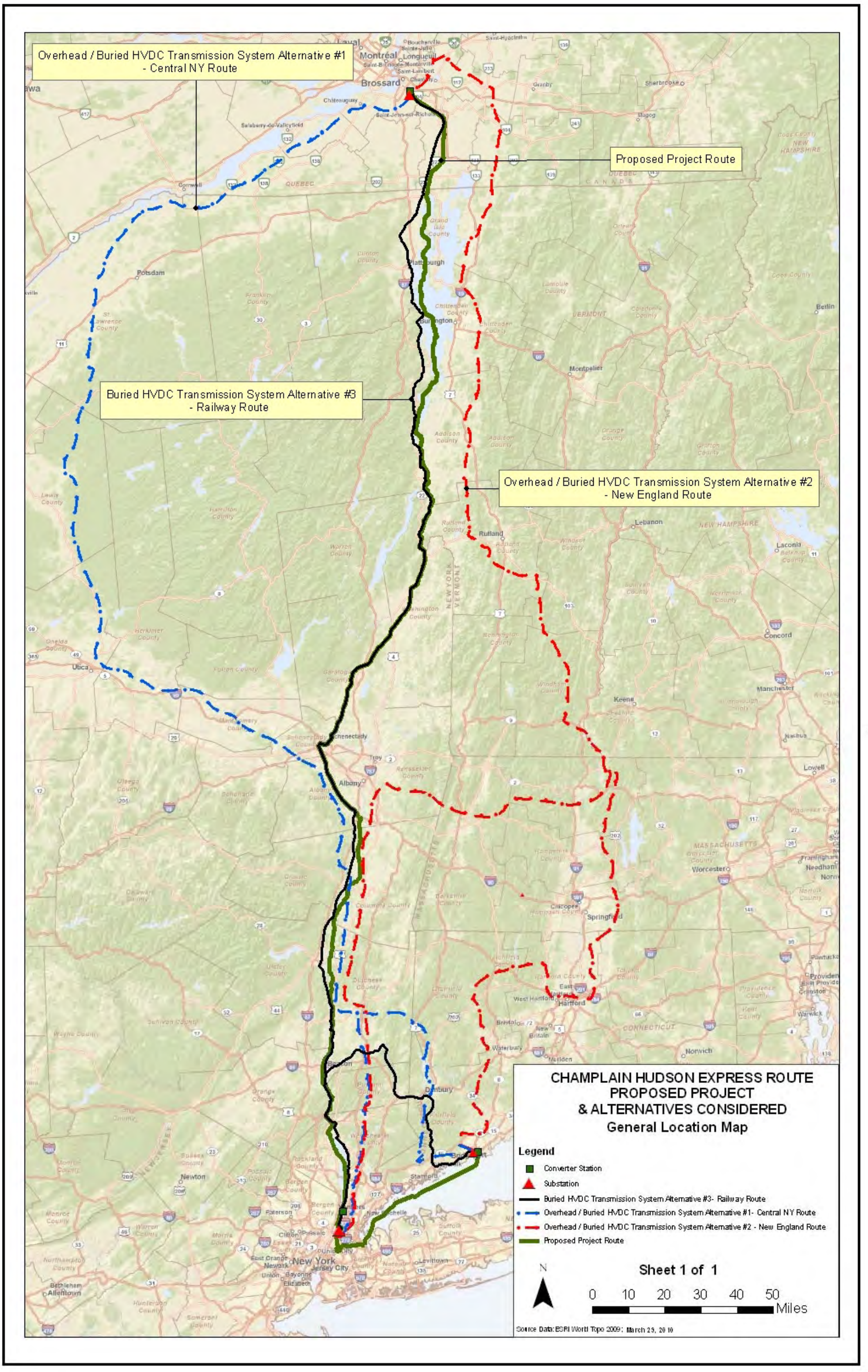
The other bipole would follow the MNCR right-of-way south to Newburgh, New York, and then head west on the MNCR right-of-way toward Danbury, Connecticut. From Danbury, Connecticut, the transmission route would follow the MNCR right-of-way south toward Norwalk before heading east along the MNCR line toward Bridgeport, Connecticut. The Buried Overland Alternative 3 is approximately 388 miles from the Hertel substation near Montreal, Canada, to the Singer substation in Bridgeport, Connecticut.

Siting Analysis

Buried Overland Alternative 3 presents significant siting problems. In the first instance, the additional costs and labor expenses associated with this extensive buried overland construction make this alternative financially impractical. This alternative would also require CHPEI to acquire additional rights-of-way to facilitate construction and line maintenance in urban areas. Current real estate prices, residential, and commercial development in the New York City and southwestern Connecticut areas make land acquisitions extremely difficult. In many areas along the MNCR right-of-way, the railroad is closely bordered by roadways, neighborhoods, and waterways that would inhibit or prevent attempts to widen the corridor to the necessary width to permit installation and maintenance of buried transmission lines. For these reasons, CHPEI considers Buried Overland Alternative 3 to be impracticable. Although considered impractical, Section 4.0 of this document provides information regarding the environmental impacts of this alternative to demonstrate that it is not the LEDPA to the proposed Project.

The proposed Project route and alternatives considered are shown in Figure 3-2.

FIGURE 3-2
CHAMPLAIN HUDSON EXPRESS PROJECT PROPOSED ROUTE
AND ALTERNATIVES CONSIDERED



Section 4
Comparison of Alternatives Considered

CHPEI evaluated the environmental impacts for each of the alternatives considered in order to determine whether a LEDPA existed to the proposed Project. Due to the scale of the Project, it was not possible to obtain detailed information (e.g., field survey data) for the alternatives; therefore, the evaluations are based on a review of readily available information. The resources evaluated include the following:

- Air quality,
- Geologic resources and soils,
- Terrestrial biological resources,
- Aquatic biological resources,
- Wetlands and water resources,
- Commercial fishing,
- Cultural resources,
- Land use,
- Traffic and transportation,
- Noise, and
- Visual resources/aesthetics.

For purposes of this analysis, CHPEI assumes HVDC technology to be the preferable technology for transmission lines, as described in Section 3.3. The proposed Project and alternatives considered all assume a 345-kV HVDC transmission line and associated infrastructure, such as an HVDC/HVAC converter station to connect to the electric grid. It is assumed that each alternative will include a converter station at/near the preferred point of interconnections (existing substations) located in Montreal, Canada; New York City; and Bridgeport, Connecticut. Therefore, the potential impacts associated with the converter station are considered to be the same for each alternative.

4.1 Air Quality

4.1.1 Proposed Project

The proposed Project has been designed to deliver clean and renewable sources of energy generated in eastern and central Canada and the U.S. to the New York City and southwestern Connecticut power markets. The clean and renewable sources of energy delivered by the proposed Project will not result in air emissions affecting air quality. During construction of the proposed Project, equipment used to manufacture, transport, and install the proposed Project will generate air emissions; however, this will be temporary in nature. Additionally, the electricity delivered to the region by the proposed Project will facilitate the decommissioning of old, fossil-fueled power plants located in the New York City and southwestern Connecticut regions; thereby decreasing air emissions in the Northeast region over time.

4.1.2 Overhead HVDC Transmission System Alternatives

The Overhead HVDC Transmission System Alternative is assumed to have very similar impacts to air quality as the proposed Project. Similar to the proposed Project, the Overhead Alternatives will deliver clean and renewable energy sources generated in eastern and central Canada and the U.S. to the New York City and southwestern Connecticut power markets. Additionally, during the construction of Overhead HVDC Transmission System Alternatives, equipment used to manufacture, transport, and install the proposed Project will generate air emissions similar to the proposed Project. The specific manufacturing, transportation, and/or installation requirements for an Overhead HVDC Transmission System Alternatives may be different from those of the proposed Project, but for this analysis they will be assumed to result in the similar type and quantity of air emissions.

4.1.3 Buried Overland HVDC Transmission System Alternatives

The Buried Overland HVDC Transmission System Alternatives is assumed to have similar impacts to air quality as the proposed Project. Similar to the proposed Project, the Buried Overland HVDC Transmission System Alternatives will deliver clean and renewable energy sources generated in eastern and central Canada and the U.S. to the New York City and

southwestern Connecticut power markets. Additionally, during the construction of the Buried Overland HVDC Transmission System Alternatives, equipment used to manufacture, transport, and install the proposed Project will generate air emissions similar to the proposed Project. The specific manufacturing, transportation, and/or installation requirements for the Buried Overland HVDC Transmission System Alternatives may be different from those of the proposed Project, but for this analysis they will be assumed to result in the similar type of air emissions. It should also be noted that the installation of a buried overland HVDC cable is anticipated to take up to 20 times longer than the installation of a buried submarine HVDC cable associated with the proposed Project, resulting in a more labor intensive process that generates a greater quantity of air emissions.

4.1.4 No Build Alternative

For the No Build Alternative, the LEI study forecasted that the No Build Alternative would result in an additional approximately 42 million tons of CO2, approximately 67 tons of sulfur dioxide, and approximately 53 tons of oxides of nitrogen, which would otherwise be offset by the proposed Project. The build-up of global warming pollution, such as CO_2, has been recognized by the federal government as causing a gradual rise in average global temperatures. Over time, it is predicted that the gradual rise in average global temperatures will cause an increase in sea level due to melting ice caps and thermal expansion. The impacts associated with the gradual rise in average global temperatures are infinitely far reaching and, therefore, are not discussed in this section. In addition, GHG emissions are responsible for acid raid (USEPA 2009) and oceanic acidification, which is the condition of an ongoing decrease in the pH of the Earth's oceans due to the uptake of anthropogenic carbon dioxide from the atmosphere (Doney et al. 2009). The federal government and states within the nation, including New York and Connecticut, have established definitive and aggressive goals to support the reduction of GHGs. The No Build Alternative does not support these goals unless other projects are developed with the same or similar design of the proposed Project.

4.2 Geologic Resources and Soils

4.2.1 Proposed Project

The proposed Project will be sited along the route within areas of favorable geology for the appropriate installation and burial of the cables. Favorable geology for the submarine portions of the proposed Project consists of sand, small gravel, silty sand, or gravelly sand. Cable installation techniques utilized for the submarine portions of the proposed Project have been selected to minimize sediment suspension and/or transport. At this time, only short sections of the proposed Project's submarine route are anticipated to require dredging to achieve appropriate burial of the cable (i.e., areas where the cable must be located in the designated navigation channels). However, it is anticipated that the areas where dredging may be required for cable installation are previously disturbed areas that routinely undergo dredging. Other than the aforementioned areas where dredging is required for cable installation, no other sediment removal or dumping is anticipated. In areas where the submarine cables encounter bedrock, the cables will be laid on top of the bedrock with protective coverings; it is not anticipated that the bedrock will be blasted/removed for cable installation.

For the overland segments of the proposed Project, cable installation and burial will likely require land clearing, including soil excavation to bury the cables within trenches, which are up to 9 feet wide at the surface and approximately 3.5 feet deep. Erosion controls will be in place to minimize stormwater run-off, and tractor and disc harrow (or similar) will be used where soil compaction has occurred to prepare the soil for restoration. Gullied, rilled, or rough sites will be smoothed and shaped to permit the use of equipment for plantings. Upon completion of the installation of the underground transmission cable, the surface of the right-of-way disturbed by construction activities will be filled with the native soil/topsoil and graded to match the original topographic contours and to be compatible with surrounding drainage patterns, except at those locations where permanent changes in drainage will be required to prevent erosion that could lead to possible exposure of the cable. In areas along the overland portions of the proposed Project route where bedrock is encountered at or close to the surface and cannot be avoided, blasting will be required to appropriately install (bury) and protect the HVDC cables.

Both the submarine and land HVDC cables are solid-state and do not contain any fluids, eliminating any potential for soil or sediment contamination from the cables.

4.2.2 Overhead HVDC Transmission System Alternatives

The Overhead HVDC Transmission System Alternatives would utilize existing transmission corridors extending from Montreal, Canada, to the New York City and southwestern Connecticut regions.

For the Overhead Alternatives, it is anticipated that the Project's 345-kV transmission line would require expansion of the existing transmission line corridors, new transmission tower construction, and new access road construction. Therefore, land clearing and tower erection activities would be necessary (as described in Section 3.3.1), which would impact geologic resources and soils.

4.2.3 Buried Overland HVDC Transmission System Alternatives

The Buried Overland HVDC Transmission System Alternatives consider routes utilizing existing transmission corridors or railroad corridors extending between Montreal, Canada, and the New York City and southwestern Connecticut regions. For these alternatives, the HVDC cables will be buried underground within or immediately adjacent to the existing corridors identified above in Section 3.3.2, primarily utilizing the same methodology expressed for the proposed Project's overland sections. However, the overland portions of the proposed Project route total approximately 74 miles compared to the Buried Overland HVDC Transmission System Alternatives along the transmission corridors (ranging from 419 miles to 455 miles in length), or railroad corridors (ranging from 360 miles to 380 miles in length). Therefore, the Buried Overland Alternative routes will require access for construction equipment consisting of trucks, excavators, and other machinery to install/bury the HVDC cables within trenches along the overland route. Installation equipment will be utilized in a manner to avoid or minimize erosion and compaction, but it is anticipated that the impacts to geologic resources and soils will be greater with the Buried Overland HVDC Transmission System Alternatives than the proposed Project.

Where large areas of bedrock at or close to the surface are encountered along the route and cannot be avoided, blasting will be necessary to appropriately install/bury and protect the HVDC cables. At this time, specific areas where this may be necessary are not known, but it is anticipated that areas of bedrock may be more prevalent in the northern mountainous regions of the overland route alternatives identified in Section 3.3.2.

4.2.4 No Build Alternative

There are no expected impacts to geologic resources and soil associated with the No Build Alternative.

4.3 Terrestrial Biological Resources

This section provides a description of impacts of the proposed Project and alternatives considered on upland vegetation cover types, terrestrial wildlife, and significant natural communities.

4.3.1 Proposed Project

The proposed Project route is buried within waterways, to the greatest extent feasible, in Lake Champlain, the Champlain Canal, the Hudson River, the Harlem River, the East River, and Long Island Sound. The proposed Project also includes 74 miles of terrestrial bypass routes, including: 1) the underground bypass routes to avoid Locks C12, C11, and C9 along the Champlain Canal in Washington County; and 2) the approximate 69.9-mile underground bypass in Washington, Saratoga, Schenectady, and Albany counties, to avoid interference with activities associated with the Upper Hudson River PCB Dredging Project. In these terrestrial areas, the transmission cables will be buried via trenching or HDD depending on location and the resources identified in the vicinity of the cables. There will also be converter station areas in the New York City and Bridgeport region where very limited vegetative clearing may occur.

The proposed Project has been designed to minimize impacts to terrestrial biological resources, to the greatest extent possible, by routing the terrestrial underground portions of the Project in previously disturbed areas primarily along existing railroad rights-of-way. In areas where

forested communities occur, routing the Project along the railroad right-of-way reduces the amount of impact to the canopy vegetation and avoids new fragmentation of forested habitats.

Vegetation clearing and excavation activities within the construction corridor will result in temporary impacts to terrestrial resources along the proposed Project overland route. Impacts are anticipated to be minor given that most equipment staging and access will be from the railroad track or from the access road adjacent to the track. As stated above, since the terrestrial portions will occur in rights-of-way, most of the vegetation that will be impacted along the underground portions of the proposed Project corridor consists of previously disturbed herbaceous and/or shrubby cover within the existing railroad rights-of-way. Herbaceous vegetation and successional shrubs within the areas impacted by construction are expected to recover quickly following restoration and stabilization of construction corridor.

Impacts to terrestrial wildlife along the underground transmission cable corridor are expected to be temporary. During construction, wildlife may be disturbed by noise, vegetation clearing, lighting, and construction activities within the impact corridor and any additional work spaces. Mobile animals are expected to be temporarily displaced from the construction area and immediately adjacent areas, moving into similar habitats nearby for the duration of construction. These species would then return to the area once construction and restoration of disturbed areas are completed. Smaller and less mobile organisms, such as turtles, amphibians, and small mammals, could experience direct mortality from vehicles and equipment within the construction corridor. CHPEI has initiated discussions with NYNHP, NYSDEC, and U.S. Fish & Wildlife Service for additional information and recommendations relating to wildlife impacts during construction and operation of the Project.

Upon completion of construction activities, CHPEI will conduct initial restoration, including soil stabilization and temporary seeding of disturbed areas. Once erosion control vegetation cover has been established, the construction corridor will be allowed to re-vegetate naturally.

During operation of the proposed Project, activities will be restricted to vegetation clearing on an as-needed basis to conduct repairs or maintenance along the transmission cables and/or selective cutting to prevent the establishment of large trees directly over the cables. The use of herbicides for construction and maintenance of the cables is not anticipated at this time.

As the terrestrial components of the proposed Project are much shorter in distance than the proposed alternatives, and the area of impact from cable installation is relatively small, the terrestrial impacts are significantly less environmentally damaging to terrestrial resources than any of the proposed build alternatives.

4.3.2 Overhead HVDC Transmission System Alternatives

The Overhead HVDC Transmission System Alternatives would exclusively utilize above-ground project components and are therefore expected to have the highest level of impact to terrestrial biological resources. The Overhead HVDC Transmission System Alternatives would follow existing transmission corridors, to the greatest extent practicable, extending from Montreal, Canada, to the New York City and southwestern Connecticut regions.

Although utilizing existing transmission corridors, the Overhead HVDC Transmission System Alternatives would require additional land-clearing activities along the existing transmission rights-of-way because it is anticipated that right-of-way expansion would be required. Additionally, transmission capacity, particularly in New York State, is old and is at or near capacity; therefore, it is likely that the existing transmission line corridors are not suitable for siting a new 345-kV transmission line on the existing towers. Based on the need to expand existing transmission rights-of-way for a new 345-kV line, land clearing for construction, access roads, and staging areas, it is anticipated permanent changes in vegetation cover type would result.

4.3.3 Buried Overland HVDC Transmission System Alternatives

A total of three alternative routes have been considered for the Buried Overland HVDC Transmission System Alternatives. These alternatives include existing railroad corridors and the two overhead transmission corridors as described above.

The buried alternatives would be sited primarily within previously disturbed areas. However, additional vegetation clearing is anticipated to expand the existing rights-of-way, construct new access roads, and accommodate cable installation areas along the existing corridors identified for these alternatives.

The Buried Overland HVDC Transmission System Alternatives are expected to have similar short-term impacts to the terrestrial portion of the proposed Project and the Overhead HVDC Transmission System Alternatives in terms of terrestrial resources. However, land-clearing activities for right-of-way expansion and construction of new access roads would result in a permanent change in cover type for wetland and upland areas. Additionally, as stated above, the total acreage of disturbed land will increase significantly under these alternatives compared to the proposed Project.

4.3.4 No Build Alternative

The No Build Alternative will have no direct impacts on terrestrial biological resources, but may have indirect effects due to acid rain and global warming.

4.4 Aquatic Biological Resources

4.4.1 Proposed Project

The proposed Project route is buried within waterways, to the greatest extent feasible, which include Lake Champlain, the Champlain Canal, the Hudson River, the Harlem River, the East River, and Long Island Sound. These waterways contain a variety of aquatic biological resources.

Installation of the proposed Project will result in some level of direct disturbance to benthic habitats, temporary suspension of sediments and increased turbidity, and introduction of hard structure, which has the potential to adversely affect aquatic biological resources in the immediate vicinity of the proposed Project submarine cable route.

The magnitude of direct disturbance to the benthic environment along the proposed Project route will depend on factors such as substrate and sediment type, water depths, and cable installation methods based on designated uses along the proposed Project route. For example, in most circumstances the submarine cables will be installed outside of the navigation channel, buried 3 to 5 feet below the substrate using water-jetting installation methods. However, in some cases, the cables will need to be installed by other methods, such as dredging within a designated navigation channel.

Benthic organisms may be affected during cable installation. Water jetting and dredging will result in trenching activities that may dislodge invertebrates from the sediments and cause suspension where some would sink into the trench and some may be displaced to the substrate adjacent to the trench. The high pressure water jetting will result in mortality of soft bodied benthic organisms that are directly contacted by the jetted water. More mobile benthic organisms may sense sediment movement (vibration) as the water-jetting device approaches and move away to avoid the approaching device. Approximately 80 percent of the disturbed substrate would sink back into the trench. Remaining sediment that falls on substrate adjacent to the trench may bury some invertebrates and shellfish. In most soft bottom habitats, impacts are expected to be temporary and localized. Many of the existing benthic species are relatively tolerant to burial or smothering, as a number of the infaunal species are deposit feeders and can burrow. Species, such as clams and mussels, can also use their muscular foot to reposition themselves upwards through relatively thinly deposited sediments.

Contaminants adsorbed to sediments will either resettle in the trench or in adjacent areas, thus the benthic organisms will be exposed to similar levels of contaminants as before the installation process. It is also possible that the water-jetting forces may cause release of contaminants from sediments, and possibly temporarily increase bioavailability.

The benthic areas temporarily disturbed by the trenching process are expected to recover completely. For example, post-construction monitoring for the Cross Sound Cable, which utilized a submarine HVDC transmission cable to connect the Connecticut and Long Island electricity markets, found no significant differences between the benthic communities within the cable route and outside the cable route (OSI 2005).

Water jetting and the associated suspension of sediments may also have an adverse localized effect on the pelagic larval stage of aquatic species. Larval stage organisms may not have the ability to avoid an oncoming water jet; however, it is anticipated that the effect to larval species would be small given the small area being trenched and the anticipated minor nature of the increased turbidity occurring near and immediately down current of the water jetting—only a very small number of larvae within the system would be affected at any one time.

Increased turbidity from benthic disturbance has the potential to reduce light levels in aquatic habitats and may result in temporary changes to water chemistry, including effects on pH and dissolved oxygen. Reduced dissolved oxygen levels result if lowered light levels decrease the oxygen production of photosynthetic organisms, and/or biochemical oxygen demand is increased by sedimentation. Fish and other mobile organisms are expected to avoid localized areas that are temporarily impacted by construction, but less mobile or sessile aquatic organisms may be adversely affected by changes in water quality. However, this impact will be short term and localized, and would be similar to periodic storm events and anthropogenic activities (e.g., boating, swimming, or invasive plant removal) that occur within these waterways.

Finfish species occurring along the proposed Project route may be temporarily displaced during the cable installation operations, either directly by cable installation equipment or indirectly by exposure to short-term changes in suspended sediments and turbidity. It is anticipated that finfish will simply avoid the areas of construction and any effects or displacement will be temporary. The proposed Project will establish a construction window to minimize potential direct and indirect impacts to fish species and will also minimize the duration of overall construction timeframes.

In areas where the cables cannot be buried, primarily areas of rocky substrate or at existing utility crossings, the presence of the cables and articulated concrete mattresses may permanently alter the type and contour of the substrate by introduction of hard structure. Given the anticipated short segments where rip-rap or concrete mats would be placed (primarily foreign utility crossings), this alteration represents an almost negligible loss of soft bottom benthic habitat and associated benthic species. The rip-rap or concrete mats will provide additional new hard bottom habitat for epibenthic organisms to colonize, essentially functioning as small patch reefs. In these areas, the rip-rap or concrete mats would provide areas of shelter, structure, or cover typically sought by some fish species, such as rock bass in the Hudson River or tautog in Long Island Sound (Johnson and Stickney 1989; Ogden 2005). Any change to aquatic habitat is expected to be minor because the cables occupy a narrow linear corridor and the area of disturbance is generally a small portion of the waterbodies through which it passes.

Effects to aquatic vegetation will be similar to sessile benthic organisms. It is expected that the cable installation process will adversely affect vegetation within the immediate vicinity of the cable route. However, aquatic vegetation is expected to quickly recolonize the areas it previously inhabited along the cable route, with the exception of areas where articulated concrete mattresses are installed. As stated above, because the area of disturbance from concrete mattresses is small, effects to vegetation are expected to be minor.

The proposed Project utilizes mitigative measures to avoid sensitive aquatic biological resources, such as those found in Haverstraw Bay. To minimize the adverse impacts to those resources, the proposed Project will site the cables within the already disturbed navigation channel in Haverstraw Bay. As described above, effects to the aquatic biological resources are expected to be small and temporary.

4.4.2 Overhead HVDC Transmission System Alternatives

The Overhead HVDC Transmission System Alternatives would likely have less impact on aquatic biological resources than the proposed Project based on the fact that these alternatives are sited along terrestrial routes. However, the Overhead HVDC Transmission System Alternative routes will encounter numerous stream, rivers, lakes, and ponds, as well as wetlands; therefore, the Overhead HVDC Transmission System Alternatives will likely need to traverse these aquatic features. It is anticipated that the existing rights-of-way would require expansion and new access roads in addition to new transmission towers for the Project's infrastructure. Land clearing associated with right-of-way expansion and access road siting/construction. When located in the vicinity of waterways/waterbodies, it is anticipated that the overhead transmission line installation activities would result in impacts to aquatic biological resources.

4.4.3 Buried Overland HVDC Transmission System Alternatives

The Buried Overland HVDC Transmission System Alternatives would encounter streams, rivers, lakes, and ponds, as well as wetlands. HVDC cable installation methodologies for the Buried Overland HVDC Transmission System Alternatives would be similar to those described in Section 2.3.2 for the proposed Project. These activities could potentially involve trenching through the waterbodies or use of HDD installation technologies, where practical or feasible, to

avoid or minimize impacts. Overall, it is anticipated that the effects of the Buried Overland HVDC Transmission System Alternatives would be similar to the proposed Project route, but on a smaller scale.

4.4.4 No Build Alternative

The No Build Alternative would have no aquatic component and, therefore, would have no direct effect on aquatic biological resources. The No Build Alternative may result in continued or increased GHG emissions and pollutants contributing toward global warming with indirect effects on aquatic biological resources due to acid rain and oceanic acidification.

4.5 Wetlands and Water Resources

4.5.1 Proposed Project

The proposed Project route is primarily sited within the waterways and shoreline areas that comprise Lake Champlain, the Champlain Canal, the Hudson River, the Harlem River, the East River, and Long Island Sound. These freshwater and saltwater waterbodies include deepwater habitats that are permanently inundated. Additionally, these waterbodies provide transitional environments between terrestrial and aquatic systems that support a unique variety of plant and animal types.

The submarine cables will primarily be installed within waterbodies linking Lake Champlain with Long Island Sound. Wetlands within the proposed Project submarine cable route are generally classified as riverine, lacustrine, estuarine, or marine unconsolidated bottoms. Therefore, activities associated with proposed Project construction have the potential to impact wetlands and deep water habitats. CHPEI anticipates that any disturbance that may result from burying the submarine transmission cables will be temporary. The water-jetting process allows sediments to backfill the trench, and it is anticipated that animal and plant communities in unconsolidated bottom sediments will quickly re-colonize the area.

The majority of the proposed Project submarine route is either riverine or tidal (Hudson River, Harlem and East rivers, and Long Island Sound), where the existing water quality typically experiences periods of naturally occurring increases in suspended sediments (i.e., storm events).

As previously discussed, the majority of the submarine cable will be installed/buried to a depth of approximately 3-5 feet using water-jetting techniques, which minimize sediment suspension and/or transport. Minimization of sediment suspension will avoid or minimize associated impacts to water quality associated with desorbed sediment contamination or turbidity. No permanent or long-term impacts on water quality from submarine cable installation are expected. In addition, no impacts will occur during cable operation unless cable repair is required.

The overland portions of the proposed Project route include a total of 74 miles of buried overland cables along sections bypassing the Champlain Canal Locks C12, C11, and C9, and the Upper Hudson River PCB Dredging Project area. At each waterbody exit and entry location, there is the potential for wetland impacts, particularly within freshwater floodplains and estuarine intertidal zones. However, HDD cable installation techniques will be used to avoid wetland impacts to the shoreline transitional areas. The construction sequence along the proposed Project overland routes will typically consist of site preparation and vegetation clearing within the construction corridor (where necessary), followed by the excavation of a trench approximately 3.5 feet deep and up to 9 feet wide at the surface. Erosion and sediment controls will be installed prior to construction.

Construction and operation of the proposed Project will result in primarily temporary impacts to wetlands and waterbodies along the terrestrial portions of the proposed Project route. This may include both direct impacts, where the edge of the cleared construction corridor traverses a wetland or riparian area, and indirect impacts from vegetation clearing and ground disturbance in adjacent uplands.

Waterbody crossings along the proposed Project railroad rights-of-way will typically be constructed by trenching across the waterbody, followed by the restoration of the bed and banks. In some cases, large waterbodies may be crossed by the HDD method, which allows installation without trenching or other surface disturbance. Alternately, where a large waterbody is crossed by a railroad bridge, the cables may be placed aboveground along the railroad trestle.

During construction, potential short-term effects on water quality may be caused by localized increases in turbidity and downstream sedimentation resulting from trenching and disturbance

within the waterbody. Erosion and sediment controls will be installed/utilized to avoid or minimize sediment runoff.

Some disturbance or clearing of riparian vegetation adjacent to waterbodies within the construction corridor may be required to conduct trenching and cable installation activities. Clearing of vegetation along stream banks has the potential to reduce the bank stability and increase erosion. These impacts will be temporary and will be minimized through the use of erosion control measures and by restoring, stabilizing, and seeding stream banks as soon as possible once construction is completed.

4.5.2 Overhead HVDC Transmission System Alternatives

The Overhead HVDC Transmission System Alternatives consider overhead cable installation primarily along existing transmission corridors extending from Montreal, Canada, to the New York City and southwestern Connecticut regions.

Many of the existing transmission corridors that extend between Canada (northeastern New York) and New York City and Connecticut consist of 115-kV transmission lines. As stated in Section 3.3, the width of 115-kV rights-of-way and height of the transmission towers are smaller than those required for a 345-kV transmission line. Additionally, it is not anticipated that existing utility line owners would agree to allow the Project's infrastructure within their rights-of-way or on their towers. Therefore, installation of the Project's 345-kV transmission line would require expansion of the corridors and siting and construction of new transmission towers and access roads. Based on the aforementioned information, it is anticipated that there will be unavoidable impacts to wetlands, water resources, and vernal pools for the Overhead HVDC Transmission System Alternatives caused by the land clearing, new tower siting and construction, and access road construction activities.

As indicated by other overhead transmission line projects, the amount of incremental clearing along existing transmission lines will depend on the existing transmission line right-of-way width and agreements with the existing right-of-way facility owners regarding the required separation distances between existing facilities and new facilities, but is typically expected to

require 100 to 150 feet of vegetation clearing. Vegetative clearing is also anticipated for construction preparation at structure locations and for access roads.

During construction of new transmission tower foundations, wetland impacts are likely from soil erosion, siltation, and sedimentation. Wetland impacts may also be associated with wetland fill in those areas where the structure foundation may extend into a wetland. For example, where tower foundations cannot avoid wetlands, the tower structures will require foundation excavation with dimensions of ranging from 400 feet^3 to greater than 2,000 feet^3, depending on the required tower design needed for that area.

The vegetation clearing required for the Project's 345-kV transmission line is expected to significantly impact wetland resources located in the vicinity of the clearing. Construction of access roads in areas that cannot avoid wetlands will include wetland filling resulting in a permanent impact to wetlands. Additionally, for areas where transmission tower siting cannot avoid wetland areas, the construction activities associated with the tower foundation include excavation and fill (including concrete), which represent a permanent impact to wetlands.

4.5.3 Buried Overland HVDC Transmission System Alternatives

The Buried Overland HVDC Transmission System Alternatives would primarily utilize existing transmission corridors or railroad corridors between Montreal, Canada, and the New York City and southwestern Connecticut regions, as detailed in Section 3.3.2. The HVDC cables would be buried underground within or along an existing corridor, as identified above in Section 2.3.2, utilizing the same methodology expressed for the proposed Project's overland sections.

The Buried Overland HVDC Transmission System Alternative routes located within transmission corridors range from approximately 419 to 455 miles in total length and the route located in the railroad corridors are approximately 360 to 388 miles in length, compared to the overland portion of the proposed Project at approximately 74 miles in total length. HVDC cable installation/burial activities will require major construction equipment consisting of trucks, excavators, and other machinery along the entire overland route. The cables will be buried within excavated trenches that are approximately 9 feet wide (at the surface) and 3.5 feet deep. Although installation equipment and techniques would be utilized in a manner to avoid or

minimize impacts to wetlands, it is expected that the Buried Overland HVDC Transmission System Alternatives would encounter numerous wetland areas along the 360 to 455 miles of overland route resulting in unavoidable impacts to upland wetlands.

Wetland delineations along approximately two-thirds of the proposed Project overland route were conducted in the fall of 2009 and indicated that the wetlands identified along the railroad rights-of-way were often associated with man-made drainage systems. Because the Buried Overland HVDC Transmission System Alternatives are primarily sited within previously disturbed, existing corridors, it is anticipated that numerous wetlands within these man-made drainage systems may be identified along the transmission and/or railroad rights-of-way resulting in significant short-term impacts.

4.5.4 No Build Alternative

The No Build Alternative is not anticipated to have direct effects on wetlands and water resources. However, the No Build Alternative assumes that existing fossil-fuel-powered generation sources would continue to operate and emit GHG pollution contributing to global warming, which may result in indirect impacts to wetlands and water resources due to acid rain and oceanic acidification.

4.6 Commercial Fishing

4.6.1 Proposed Project

The proposed Project route is sited in areas open to commercial fishing activities. To minimize impacts to commercial fisheries, the proposed Project route has been sited to avoid interaction with commercial shellfish beds and other important commercial fishing areas. To minimize impacts to commercial trawl fishing, the cables will bury the HVDC cables 3 to 5 feet below the substrate.

The proposed Project will primarily utilize water-jetting techniques to install the submarine HVDC cables. However, in the event that water-jetting techniques are infeasible, plowing, dredging, or HDD techniques may be required for appropriate cable installation/burial. In areas were the submarine HVDC cables cannot be buried (i.e., areas of bedrock or existing

infrastructure crossings), the cable will be laid on the surface with protective coverings, such as concrete mattresses.

The construction of the proposed Project will cause a temporary, localized disturbance to benthic habitats, which could directly harm aquatic species that remain within the construction footprint. Indirect effects may also occur, such as a minor reduction in benthic prey, increased suspended sediments, or behavioral avoidance. Installation of the cables using water jetting could potentially cause mortality of benthic infaunal and epifaunal organisms (e.g., polychaete and oligachaete worms, crabs, mysids, sand shrimp) within the narrow, linear construction corridor, thus temporarily reducing the availability of food sources for the fish species. However, within Lake Champlain, the Hudson River, and Long Island Sound, the area disturbed represents a small fraction of the bottom habitat; therefore, this temporary and localized loss of benthic prey would have only a minor and temporary adverse effect on the food intake of benthic feeding fish.

In areas where conventional dredging is employed, typically for deeper burial areas such as navigation channel crossings, there will be a more substantial alteration of the benthic habitat compared to water jetting, since the construction will involve sediment removal, cable-laying, and then native-material backfilling. Depending on the nature of the backfill, the sediment surface characteristics could be altered, since it is unlikely that exactly the same grain-size composition will be created as existed prior to cable installation. Depending on currents and erosional forces, backfill will be used that is anticipated to remain in place. However, whatever the backfill characteristics are, they are likely to become colonized over time with benthic organisms.

A long-term alteration of the bottom would occur with the placement of rip-rap or concrete mats along the cable route, which would result in the mortality of benthic biota and other immobile or slow-moving benthic organisms located in the immediate area of placement. Given the anticipated short segments where rip-rap or concrete mats would be placed (primarily foreign utility crossings), this alteration represents an almost negligible loss of soft bottom benthic habitat and associated benthic species. The rip-rap or concrete mats will provide additional new hard bottom habitat for epibenthic organisms to colonize, essentially functioning as small patch reefs. In these areas, the rip-rap or concrete mats would provide areas of shelter, structure, or

cover typically sought by some fish species, such as rock bass in the Hudson River or tautog in Long Island Sound (Johnson and Stickney 1989; Ogden 2005).

Recruitment and re-colonization of the benthic infaunal communities is expected to occur following construction, since soft bottom benthic species have adapted to naturally occurring bottom disturbances through reproductive mechanisms involving planktonic larval recruitment. Studies conducted on offshore sand borrow areas off the outer New Jersey coast indicated that benthic communities were re-established within 8 to 9 months, i.e., within one annual recruitment period after dredging (USACE 1999). Based on the small percentage of habitat impacted from cable installation and the temporary nature of the disturbance to the benthic habitat, it is not anticipated that a measureable effect to commercially valuable fish species will be detected.

4.6.2 Overhead HVDC Transmission System Alternatives

The Overhead HVDC Transmission System Alternatives would have no marine or major aquatic component and, therefore, would have no effect on commercial fishing.

4.6.3 Buried Overland HVDC Transmission System Alternatives

The Buried Overland HVDC Transmission System Alternatives would have no marine or major aquatic component and, therefore, would have no effect on commercial fishing.

4.6.4 No Build Alternative

The No Build Alternative would have no marine or major aquatic component and, therefore, would have no direct effect on commercial fishing resources. The No Build Alternative may result in continued or increased GHG emissions and pollutants contributing to global warming, which may have an indirect effect on aquatic resources and commercial fishing due to acid rain and oceanic acidification.

4.7 Cultural Resources

4.7.1 Proposed Project

The proposed Project has the potential to affect archaeological sites, historic properties, and shipwrecks, including those resources listed in or eligible for inclusion in the National Register of Historic Places (National Register). The proposed transmission cable corridor will be located along historically significant waterways in New York that have been designated as archaeologically sensitive by the New York State Office of Parks, Recreation, and Historic Preservation (OPRHP). This corridor follows sections of waterways where historic shipwrecks have been reported and may potentially include deposits associated with adjacent archaeological and historic sites located along the shorelines. To the extent practicable, existing shipwreck data, archaeological site information, and other resources have been reviewed to site the transmission cables in locations that will not directly affect these resources. However, there are instances along the proposed Project route where avoidance is not practical and where the transmission cable corridor will intersect with reported historic resources.

Overland sections of the proposed Project route intersect with reported archaeological sites that extend through the railroad right-of-way. Although most of these sites have not been evaluated for inclusion in the National Register, they may potentially meet the criteria for eligibility.

The proposed Project route will also be located in the vicinity of historic buildings and structures, including historic canalways and their associated infrastructure. These historic properties include lock systems along the Champlain Canal, districts that encompass portions of the canal itself, and historic bridges along the Hudson River, Spuyten Duyvil Creek, and the Harlem River. The proposed Project route is also located within National Heritage Areas and New York State Heritage Areas, including the Mohawk Valley Heritage Corridor and the "RiverSpark" (Hudson-Mohawk) Heritage Area.

In general, the Project is unlikely to have a significant effect on standing historic structures within the proposed Project's vicinity. With the exception of the converter station, the proposed Project's principal components will be buried and will not have an effect on the viewshed. The

converter station will be designed to match the character of the surrounding area and is not expected to have an adverse impact on any historic properties in the vicinity.

In the development of compensation for the adverse effects of a proposed action on cultural resources, the first and most desirable approach is to maximize the avoidance of impacts in all aspects of a project. Impact avoidance has been incorporated in all major aspects of the Project.

In the first instance, the selection of a submarine cable for this proposed Project avoids many potential impacts that are associated with an overland route. The installation of the cables in existing waterways will significantly reduce the overall number of sites that could potentially be impacted by this Project. Prehistoric and historic period archaeological sites are generally found on landforms suitable for short- or long-term habitation, resource procurement practices, defense, and agriculture. While waterways have served as important transportation routes and economic conduits, most archaeological sites and historic standing structures are located along shorelines or in upland areas. Consequently, the selection of a submarine route avoids impacts to these landforms that have the highest potential for archaeological sites or historic standing structures.

The proposed Project will not require the construction of poles or towers that can mar the viewshed and indirectly affect the integrity and character of historic properties. The installation of submarine cables will also avoid ground disturbance associated with installing towers or poles, including the disturbance caused by construction vehicles and wire-pulling equipment. Additionally, submarine cables do not require vegetation management activities that require clearance along a right-of-way. The ground-disturbance associated with clearing and maintaining a traditional, overhead transmission line right-of-way can cause damage to buried archaeological deposits along the entire right-of-way.

Cable installation methods have been selected to minimize the extent of ground disturbance both above and below waterways. Cable burial using a hydroplow system uses a focused, high-powered water jet to avoid widespread ground-disturbing activities along a majority of the route. Similarly, HDD installation at locations where the cables must enter or exit the water will avoid disturbance to the topmost soil layers that generally have the highest potential to contain archaeological deposits.

The use of a submarine cable provides flexibility in cable siting that permits placement to avoid identified archaeological or historical resources. The preferred approach is to avoid adverse effects to cultural resources by routing the transmission cable around identified historic properties, reported archaeological sites, shipwrecks, and anomalies identified in waterways. To this end, screening studies were incorporated into the siting process. The proposed Project route avoids a majority of identified resources along the Project's alignment.

4.7.2 Overhead HVDC System Alternatives

The Overhead HVDC Transmission System Alternatives utilize existing transmission corridors identified between Montreal, Quebec, and the New York City and southwestern Connecticut regions.

These alternatives require significant ground-disturbing activities to facilitate installation of support towers, access roads, lay-down areas, wire-pulling sites, and turnaround areas. Additionally, the timber clearing/vegetation management activities associated with construction and maintenance of overhead lines will result in ground disturbance that could adversely affect buried archaeological deposits.

Prehistoric and historic period archaeological sites are generally found on landforms suitable for short- or long-term habitation, resource procurement practices, defense, and agriculture. Therefore, terrestrial construction activities have a higher inherent probability of disturbing archaeological or cultural deposits. Although archaeological studies have been conducted along portions of the rights-of-way associated with the Overhead HVDC Transmission System Alternatives discussed in this analysis, comprehensive cultural resource studies are lacking for an overwhelming majority of these routes.

Notwithstanding this lack of specific data, professional and amateur archaeologists alike in New York and New England have long recognized that archaeological sites can be found on a variety of landforms. Prehistoric archaeological sites along the upland sections of the Overhead HVDC Transmission System Alternatives may range from temporary or seasonal campsites to stockaded villages. River valleys and shoreline areas were often centers of prehistoric population, and larger villages are found along drainages and adjacent to shorelines throughout New York State.

In many instances, sites found along major drainages include dense, multi-component archaeological deposits, representing prehistoric populations that utilized these locations repeatedly over a span of hundreds or even thousands of years.

Historic period resources are also likely to be prevalent along these Overhead HVDC Transmission System Alternatives, particularly in dense urban areas. In the Adirondack region, the remnants of historic period homesteads, logging camps, and hunting camps are found not only near historic roadways, but often in relatively remote or isolated upland areas. In urban areas, dense historic archaeological deposits are common. The Overhead HVDC Transmission System Alternatives will extend through historic towns and cities that have been occupied since the early colonial period. The archaeological sensitivity of these areas is considered high and there is a strong probability that sites will be disturbed during construction of overhead transmission lines.

Overhead transmission towers may also mar the viewshed and adversely affect the integrity and character of historic buildings and structures along the overhead rights-of-way. Whereas construction of buried/submerged transmission lines largely avoids these impacts, overhead transmission lines may affect the historic landscapes and viewsheds that make National Register properties significant.

The Overhead HVDC Transmission System Alternatives are relatively restricted to existing utility corridors, and therefore lack the same flexibility to avoid historic properties afforded to the proposed Project. Although the Overhead Alternatives primarily utilize existing corridors, it is anticipated that large sections of the routes will require expansion (land clearing) of the existing rights-of-way, as well as new (often taller) transmission towers. In general, the Overhead HVDC Transmission System Alternatives considered in this analysis have a high potential to adversely affect historic properties, including historic and prehistoric sites, buildings, districts, structures, and individual objects.

4.7.3 Buried Overland HVDC Transmission System Alternatives

The Buried Overland HVDC Transmission System Alternatives considered in this analysis are likely to have similar impacts to historic properties as those discussed in Section 4.7.2, above.

Similar to the Overhead Alternatives, the Buried Overland Alternatives require extensive ground disturbance in areas considered archaeologically sensitive for both historic and prehistoric period archaeological resources. Buried Overland Alternatives utilizing railroads may have a higher potential to impact archaeological deposits, inasmuch as these corridors often follow transportation networks that have been used since the prehistoric period. Historic communities developed along these arteries across the region, and the probability of impacting historic period archaeological sites is significant.

The Buried Overland HVDC Transmission System Alternatives are relatively restricted to existing utility corridors and railroad rights-of-way and, therefore, lack the same flexibility to avoid historic properties afforded to the proposed Project. While the Buried Overland Alternatives do not include construction of transmission towers that could adversely affect historic resources, the additional ground-disturbing activities associated with the Buried Overland Alternatives make avoiding buried deposits less practical and therefore increase the potential of adversely affecting cultural resources

4.7.4 No Build Alternative

The No Build Alternative would not require ground disturbance or construction. Therefore, the No Build Alternative would have no effect on historic properties listed in or eligible for inclusion in the National Register.

4.8 Land Use

4.8.1 Proposed Project

The majority of the proposed Project route is located underwater, with minimal potential impact to public or private property, open space, or any existing or planned land uses. Underwater portions of the proposed Project are not expected to result in any significant impacts to land use, since water-dependent uses, navigation, and other coastal uses will not be affected.

The overland portion of the Project will be constructed primarily within the existing CP and CSX railroad rights-of-way, with a short segment located on lands owned by the New York State Canal Corporation. Along the overland portions of the proposed Project route, impacts to land

use have been minimized by routing the Project along existing disturbed railroad rights-of-way, to the extent possible.

The Project does not conflict with existing comprehensive county or town plans or local waterfront revitalization plans in New York or Connecticut.

4.8.2 Overhead HVDC Transmission System Alternatives

The Overland HVDC Transmission System Alternatives utilize existing transmission corridors identified between Montreal, Canada, and the New York City and southwestern Connecticut regions.

However, it is assumed that the Overhead HVDC Transmission System Alternatives would require additional land clearing and widening of the existing corridors, thereby further impacting the existing corridor and potentially impacting nearby land uses. While the Overhead Alternative routes are largely located in less developed areas of northern New York as well as western Vermont and Massachusetts, the routes are still located in areas with many homes, schools, hospitals, and industry. Although less developed, it is anticipated that the overhead transmission lines requiring right-of-way expansion will impact the surrounding land uses.

Land use designations are often closely related to the influences and value of the surrounding aesthetics. An Overhead HVDC Transmission System would influence the surrounding aesthetics and may cause changes in land use designations.

4.8.3 Buried Overland HVDC Transmission System Alternatives

The land use impacts associated with the Buried Overland HVDC Transmission System Alternatives are assumed to be similar to those detailed for the overland portion of the proposed Project.

4.8.4 No Build Alternatives

There will be no impact to land use or recreation from the No Build Alternative.

4.9 Traffic and Transportation

4.9.1 Proposed Project

There are several heliports and airports located in the vicinity of the proposed Project route in New York City and southwestern Connecticut. Impacts to airports and air transportation systems are typically related to the presence of structures or objects that could affect flight paths, such as transmission poles and towers and tall buildings. The proposed Project HVDC cables will be buried in waterways and along terrestrial routes—no transmission towers will be installed. The proposed Project converter stations will be designed to comply with the local height ordinances to avoid impacts to air traffic. All construction equipment, including barges used for cable delivery and installation, will comply with established vessel height requirements per the Federal Aviation Administration and the Port Authority, as appropriate. Based on the aforementioned information, the proposed Project will not affect air transportation systems.

There are several railroad companies that operate passenger and freight railroad lines across the State of New York and southern Connecticut. Although the majority of the proposed Project route is located within waterways, approximately 73 miles of the route utilize railroad right-of-way corridors in New York. The proposed Project primarily utilizes railroad lines/corridors owned/operated by CSX Transportation, Inc. (CSX) and Canadian Pacific Railway (CP). These freight railroads transport a wide variety of goods, including automobiles, chemicals, minerals, and energy products.

Impacts to railroads associated with the installation of the Project will be minor, temporary, and localized. Once installed, the Project will be buried within the right-of-way and have no effect on railroad operations. The cables will be installed in accordance with railroad-specific engineering standards. The HVDC cables to be installed along the terrestrial section of the route between Lock C8 and the town of Coeymans will be physically transported by waterway through the Hudson River to Albany, New York, and then transferred to railcars for delivery to the lay-down areas along the railroad rights-of-way. The railroad lines are designed to handle this type, volume, and weight of freight. Delivery activities and equipment storage will be coordinated with the railroad companies so as not to affect current operations.

In normal terrain, where the soil consists of unconsolidated rock and earth, cables will be buried in trenches excavated using rail-mounted equipment. When this is not possible, traditional excavation equipment will be used. The timing of these construction activities will be coordinated with the railroad companies to avoid or minimize impacts to ongoing railroad operations.

Existing roadways will be crossed along the overland portions of the proposed Project route, including areas along railroad rights-of-way utilized for the Lock C12 bypass and the Hudson River PCB Dredging Project bypass routes. Once installed, the cables will be buried and pose no obstacle to the normal operation of the road network. Roadway impacts associated with the installation of the proposed Project will be minor, temporary, and localized.

The delivery of equipment and cables associated with the Project is expected to be primarily accomplished through the use of barges and railroads. The transportation of equipment and construction materials is expected to only slightly and temporarily increase the overall volume of traffic on local roadways. Delivery of oversized equipment by trucks will be appropriately coordinated to minimize impacts to traffic flow and the surrounding community.

Where paved roadways are encountered, it is anticipated that the HVDC cables will be buried beneath the paved roadway utilizing HDD techniques. HDD techniques are designed to install linear infrastructure in a way that avoids disturbance of existing surficial features. As a result, minimal disruption of existing traffic patterns is anticipated during the cable installation process.

The proposed Project route is located primarily within the waterways of Lake Champlain; the Champlain Canal; the Hudson, Harlem, and East Rivers; and Long Island Sound. Impacts to commercial and recreational use of these waterways are expected to be minor and temporary. During Project construction, the presence and operation of the cable installation vessels will create additional vessel traffic on these waterways. Following installation of the cables, there will be no active Project-related impact to these resources. However, the presence of the cables will result in additional areas within these waterways where restrictions would be imposed on vessel anchorage. The proposed route avoids designated anchorage areas, so the overall impact is expected to be minor. All Project work activities will be closely coordinated with the USACE,

the U.S. Coast Guard (USCG), local pilot associations, and other local, state, and federal agencies as determined to be necessary to minimize or avoid impacts.

There are no designated shipping lanes or recommended vessel routes within Lake Champlain. However, the Lake Champlain ferries cross the lake at three locations. Cable installation activities will be coordinated with ferry operators to avoid adverse effects to ferry schedules and operations.

The Champlain Canal system was originally designed and operated primarily for the purposes of commercial navigation. Although commercial operations continue along the canal system, the Champlain Canal is currently used primarily for recreational purposes. The Champlain Canal navigation season generally runs from early May to the middle of November. Construction of the proposed Project may temporarily affect recreational and commercial use. The HVDC cables will be delivered and installed via barge vessels designed to fit within the canal locks system, and these vessels may cause delays in commercial boating traffic, as well as temporarily disrupt recreational activities such as boating, angling, and sightseeing. It is anticipated that close coordination of installation activities with the NYSCC will avoid or minimize impacts to commercial and recreational use of the canal system.

Larger vessels moving in the vicinity of the Project utilize existing navigation channels located within the Hudson River, Harlem River, and East River. The majority of the proposed Project will be located outside of the existing navigation channels. In those instances where environmental or engineering circumstances suggest that cables should be laid within or cross the navigation channel, CHPEI will coordinate with the USACE, USCG, and other agencies as necessary to minimize the impact to normal navigation activities and ensure the cables are installed at the proper depth. Impacts to navigable waterways associated with the installation of the proposed Project will be minor and temporary.

Once installed, the cables will be buried and will pose no obstacle to the normal operation of navigable waterway transportation activities. CHPEI will ensure that the precise cable locations will be published on nautical charts.

4.9.2 Overhead HVDC Transmission System Alternatives

The Overhead HVDC Transmission System Alternatives utilize existing overhead transmission corridors identified between Montreal, Canada, and the New York City and southwestern Connecticut regions. For this analysis, it will be assumed that the HVDC cables will be delivered to the areas of installation via existing roadways and transmission corridor access roads. Therefore, impacts to marine and railroad transportation networks are not anticipated for the Overhead HVDC Transmission System Alternatives.

It is assumed that the HVDC cables will be delivered via tractor-trailer truck on existing roadways to the areas of installation. Based on the information known to date, it is anticipated that delivery of oversized equipment by trucks will be appropriately coordinated to minimize impacts to traffic flow and the surrounding community. However, based on the quantities of equipment needed for a 400-plus-mile Overhead HVDC Transmission System, it is anticipated that minor impacts to roadway traffic may be experienced during cable deliveries.

Unlike buried transmission lines, overhead transmission lines can create a hazard for air traffic and transportation networks. It is anticipated that new overhead transmission lines entering urban areas like New York City, which have a great deal of air traffic (numerous airports and heliports), would require coordination with the Federal Aviation Administration for appropriate siting and construction of the overhead lines.

4.9.3 Buried Overland HVDC Transmission System Alternatives

The Buried Overland HVDC Transmission System Alternatives consider numerous types of existing corridors between Montreal, Canada, and the New York City and southwestern Connecticut region, which include existing transmission corridors or railroad corridors. Impacts to transportation networks associated with cable installation in the aforementioned corridors will differ from each other.

The transportation network impacts associated with the Buried Overland HVDC Transmission System utilizing existing transmission corridors are assumed to be the same as those detailed in Section 4.9.2 for the Overhead HVDC Transmission System Alternative.

The transportation network impacts associated with the Buried Overland HVDC Transmission System utilizing existing railroad corridors are assumed to be similar in nature to those detailed in Section 4.9.1 for the proposed Project. However, the proposed Project utilizes only 74 miles of railroad corridor in comparison to the Buried Overland HVDC Transmission System Alternative, which would utilize more than 360 miles of railroad corridor. Therefore, this alternative is expected to have a greater impact than the proposed Project's terrestrial routes on railroad transportation.

4.9.4 No Build Alternative

No impacts to traffic and transportation resources are anticipated by the No Build Alternative.

4.10 Noise

4.10.1 Proposed Project

For the proposed Project, noise associated with the construction and installation of the submarine and underground transmission lines, converter stations, and transformer substation upgrades will be temporary in nature. Construction in the vicinity of any single residence or business will last only a few days to a week as construction progresses along the transmission cable corridor. Underwater noise from the operation of vessels and installation of cables are expected to be below those levels that could cause temporary hearing impairments or physical injury to aquatic species and wildlife. The continual noise may cause fish and other aquatic species to avoid this area, but state and federal agencies will be consulted to determine if limiting in-water work to certain periods would further mitigate the impact of certain noise producing activities.

While the operation of the converter station has the potential to produce noise, it is anticipated that operational noise levels in the vicinity of these facilities will be within applicable zoning regulations and will not be out of character with the surrounding noise.

4.10.2 Overhead HVDC Transmission System Alternatives

Construction of an Overhead HVDC Transmission System would potentially include right-of-way clearing activities, construction of access roads (if required), foundation construction,

structure erection, conductor stringing, and site cleanup and restoration. Construction-related noise will be temporary. The overhead construction-related phases, including land clearing, foundations, structure erection, and conductor stringing, are expected to have durations of 1 week or less each. The construction noise impacts will primarily be localized to the areas where the transmission line support structures (towers) will be located, which are spaced approximately 700 to 1,000 feet apart.

The noise impacts associated with the construction and operation of the converter stations and potential substation upgrades are anticipated to be similar to the proposed Project.

4.10.3 Buried Overland HVDC Transmission System Alternatives

Construction activities required for installation of a Buried Overland HVDC Transmission System within an existing transmission or railroad corridor are assumed to be very similar to the proposed Project and result in similar noise impacts. The construction noise impacts associated with these alternatives is considered to be similar to those detailed in Section 4.10.1 for the proposed Project. However, the proposed Project's overland route is 74 miles in total length, whereas the Buried Overland HVDC Transmission System Alternatives are more than 360 miles in total length. Therefore, the noise impacts associated with a buried land cable for this alternative are greater than those associated with the proposed Project.

The noise impacts associated with the construction and operation of the converter stations and potential substation upgrades are the same as those for the proposed Project.

4.10.4 No Build Alternative

In the event that the Project is not built and the associated 2,000 MW of electricity is not supplied to the New York City and southwestern Connecticut markets, existing power generation facilities may need to expand their energy production to meet the increased energy demands of the region. Therefore, the No Build Alternative could be associated with an increase in noise levels associated with increased energy production at existing generation facilities.

4.11 Visual Resources/Aesthetics

4.11.1 Proposed Project

Lake Champlain, the Hudson River, and portions of Long Island Sound are highly valued for their scenic character. The proposed Project is designed to have negligible visual impacts. There will be no overhead transmission lines constructed as part of the proposed Project. To the extent possible, CHPEI proposes to bury the transmission cables within existing waterways of Lake Champlain, Champlain Canal, Hudson River, Harlem River and Long Island Sound to minimize visual impacts typically associated with traditional overhead transmission lines. In areas where the transmission cables cannot be buried within waterways, the transmission cables will be buried underground within existing railroad corridors.

Impacts to the visual quality and scenic character of the proposed Project route would be associated with the construction phase of the Project. During the construction phase, various types of marine vessels will be used to install the cable in the waterway portions of the route. HDD and other construction equipment may be used to install the cable along overland sections where the cables cannot be installed in the waterways. Construction equipment will be visible from many different areas and vantage points, and this equipment could have a short-term visual impact on the scenic character of the region. However, these visual impacts should be considered temporary, as they are only associated with the construction phase of the Project.

During construction of overland portions of the proposed Project, vegetation clearing may be necessary within the cable corridor during installation activities. Therefore, the visual character of the vegetation may be impacted by cable installation along overland portions of the route. However, these visual impacts are considered temporary or limited, as areas cleared outside of the cable locations will be allowed to naturally regenerate and riparian vegetation will be preserved as much as possible to minimize visual impacts on shoreline habitats and other terrestrial areas along the proposed Project corridor.

Visual impacts associated with the operation of the proposed Project may result from the above-ground converter station component. To the greatest extent feasible, the converter stations will be designed to blend with the surrounding landscapes and architecture. The land use in the

general vicinity of the proposed converter station locations are largely commercial/industrial. It is anticipated that the visual impacts from the converter station will be minimal, as it is sited in an already heavily developed urban area.

4.11.2 Overhead HVDC Transmission System Alternatives

The Overhead HVDC Transmission System Alternatives would exclusively utilize above-ground Project components and are therefore expected to have the highest level of visual impact compared with the other proposed alternatives within this analysis. The Overhead HVDC Transmission System Alternatives would follow existing transmission corridors, to the greatest extent practicable, extending from Montreal, Canada, to the New York City and southwestern Connecticut regions.

The Overhead HVDC Transmission System Alternatives would require additional land-clearing activities within the existing transmission rights-of-way. In addition, land clearing may be required for construction, access roads, and staging areas. In general, the longer the overhead transmission route, the more visual impacts associated with overhead components and vegetative clearing.

Several different transmission tower configurations may be utilized for overhead alternatives. In general, the potential transmission tower types can be defined as “lattice” or “monopole” designs. Lattice towers are constructed of galvanized steel and assembled on-site. These freestanding towers are widely used as transmission line support structures across the United States. Lattice towers have a relatively wide base, and their design requires greater clearance along rights-of-way. Monopole towers have a single-shaft, tubular structure. While the monopole towers generally have less visual impact, it is expected that any development of overhead lines will be visually obtrusive. The specific height and design of each monopole or lattice tower would be determined by the angle of the conductor bundles, the span between towers, and the topography. In general, for a 345-kV transmission line, the lattice or monopole steel support structures would be expected to vary from approximately 65 to 135 feet in height. Spans would range from 600 to 700 feet between monopole towers and 800 to 1,000 feet between lattice towers. This infrastructure will be highly visible from many vantage points.

4.11.3 Buried Overland HVDC Transmission System Alternatives

A total of three alternative routes have been considered for the Buried Overland HVDC Transmission System Alternatives. The buried overland routes were developed with the intention of minimizing visual impacts. These alternatives include existing railroad corridors and the three overhead transmission corridors described above.

Railroad lines extend along the western shore of Lake Champlain and the Champlain Canal from Canada to the confluence of the Mohawk and Hudson rivers. Railroads continue south along the western shore of the Hudson River toward New York City. Near the town of Poughkeepsie, the cable route would exit the railroad right-of-way, cross beneath the Hudson River, and follow another railroad right-of-way into New York City and continue to southwestern Connecticut. It should be noted that the railroad lines within the New York City and the southern portions of Connecticut along Long Island Sound extend through heavily developed areas.

The visual impact from the buried overland route alternatives would have a similar level of impact as the proposed Project. It is anticipated that vegetative clearing and disturbance would occur from cable trenching activities. This would represent a temporary visual impact. However, areas disturbed would be restored with respect to the existing environmental features. Depending on the overland route, additional land clearing would likely be required for service and installation equipment, access road, and construction staging areas. The visual effects from the proposed converter station would be the same as those described above for the proposed Project.

4.11.4 No Build Alternative

Under the No Build Alternative there will be no direct effects to visual aesthetics. However, to satisfy growing energy demand in the New York City and southwestern Connecticut load centers, it is anticipated that additional transmission infrastructure will need to be created and new generation facilities brought on line. These actions will likely have negative effects on the visual aesthetics caused by the construction of the Project, Project infrastructure (if not buried), and potential smog-forming emissions from fossil-fuel-fired generation facilities.

Section 5

Discussion and Conclusions

The LEDPA analysis for the proposed Project and the alternatives considered is described within this report and briefly summarized below.

5.1 Air Quality

Activities associated with the construction of the proposed Project and each alternative considered are anticipated to result in emissions from the construction equipment. The operation of the proposed Project and each alternative considered is not anticipated to result in the continued air emissions because the Project is designed to deliver clean and renewable sources of electricity generation. The No Build Alternative assumes that if the Project is not built, continued use of fossil-fuel-powered generation facilities will be required at the current levels or higher, thereby further contributing to GHG air emissions.

5.2 Geologic Resources and Soils

The proposed Project is primarily located in waterways with approximately 74 miles of terrestrial route along previously disturbed existing rights-of-way. Land clearing and blasting activities would be limited to the terrestrial portions of the route and are anticipated to only be required along very limited areas.

The Overhead Transmission System Alternatives are anticipated to require land clearing, blasting, and/or excavation along large portions of these routes; therefore, impacts to geologic resources and soils are anticipated to be long-term impacts.

Similar to the Overhead Alternatives, the Buried Overland Alternatives are anticipated to require land clearing, blasting, and/or excavation activities along large portions of the overland routes. Therefore, impacts to geologic resources and soils are anticipated to be long-term negative impacts.

No impacts to geologic resources and soils are anticipated for the No Build Alternative.

5.3 Terrestrial Biological Resources

The proposed Project is primarily located in waterways with approximately 74 miles of terrestrial route along previously disturbed existing rights-of-way. Land clearing and blasting activities would be limited to the terrestrial portions of the route and are anticipated to only be required along very limited areas. Therefore, impacts to terrestrial biological resources are anticipated to be low or negligible.

The Overhead Transmission System Alternatives are anticipated to require land clearing, blasting, and/or excavation along large portions of these routes; therefore, impacts to terrestrial biological resources are anticipated to be long-term impacts due to habitat conversion and/or loss.

Similar to the Overhead Alternatives, the Buried Overland Alternatives are anticipated to require land clearing, blasting, and/or excavation activities along the 400-plus miles of the overland routes. However, it is assumed that lesser areas of land clearing would be required for the Buried Overland Alternative routes than for the Overhead Alternatives.

No direct impacts to terrestrial biological resources are anticipated for the No Build Alternative, although there may indirect impacts due to acid rain and global warming.

5.4 Aquatic Biological Resources

The proposed Project is primarily sited within waterways. Submarine transmission cable installation methodologies have been selected to utilize the least environmentally damaging practical alternative. Based on an analysis of the submarine cable installation techniques, as well as a review of existing submarine cable projects post-construction monitoring data, it is anticipated that the impacts to aquatic biological resources from the proposed Project will be temporary.

The Overhead Alternatives are not considered to result in a direct impact to aquatic biological resources associated with waterbodies and waterways along the identified routes.

The Buried Overland Alternatives are anticipated to encounter streams, rivers, lakes, ponds, and wetlands along these routes. Because these alternatives consider a buried transmission cable, it is anticipated that there will be temporary impacts to aquatic biological resources during cable construction across waterbodies/waterways.

The No Build Alternative is assumed to result in indirect impacts to aquatic biological resources resulting from global warming and oceanic acidification caused by air polluting fossil-fuel-powered generation sources.

5.5 Wetlands and Water Resources

The proposed Project is primarily sited within waterways with approximately 74 miles of cables sited along existing railroad rights-of-way. The proposed Project's submarine and land cable installation methodologies are anticipated to represent a temporary impact to wetlands. No wetlands are anticipated to be permanently impacted or lost by the proposed Project.

The Overhead Alternatives will require land clearing, new transmission towers, and new access roads along large portions of these routes. Therefore, it is anticipated that the impact to wetlands from the excavation and filling required for new towers and access roads would represent a long-term, permanent change in wetland cover type in or near vernal pools and wetlands.

It is assumed that the Buried Overland Alternatives would have similar impacts to wetlands as to the terrestrial portions of the proposed Project. Wetland impacts for the Buried Overland Alternatives are assumed to be less than the Overhead Alternatives because it is assumed that lesser areas of land clearing would be necessary.

The No Build Alternative is assumed to result in indirect impacts to wetland and water resources resulting from global warming, acid rain, and oceanic acidification caused by air polluting, fossil-fuel-powered generation sources.

5.6 Cultural Resources

The proposed Project is primarily sited within waterways and previously disturbed rights-of-way. The Overhead and Buried Overland Alternatives are sited along existing overland corridors. Due

to the greater likelihood of encountering cultural resources along overland portions, it is assumed that the impacts for the alternatives considered would be greater than for the proposed Project.

The No Build Alternative is assumed to have no impacts on cultural resources.

5.7 Land Use

The proposed Project is primarily sited within waterways or along previously disturbed overland corridors. Therefore, the proposed Project is not anticipated to have significant impacts on the current land use along the route.

The Overhead and Buried Overland Alternatives are primarily sited along existing, previously disturbed corridors. Changes in land use for these alternatives will be dependent on whether significant corridor expansions and infrastructure upgrades are necessary. However, because land use designations are so closely linked to the aesthetic value of an area, the Overhead Alternatives are considered to have a long-term impact on the land uses along these routes.

The No Build Alternative is assumed to have no impacts on land use.

5.8 Commercial Fishing

The proposed Project is primarily sited within waterways, many of which support commercial fishing. Impacts to commercial fishing from the proposed Project are anticipated to be low and temporary. A high level of coordination will be conducted with the commercial fishermen and associated organizations to avoid cable siting in productive fishing areas and avoid installation during productive fishing seasons.

Little to no impacts to commercial fishing are anticipated for the Overhead and Buried Overland Alternatives considered.

The No Build Alternative is assumed to result in indirect impacts to commercial fishing resources resulting from global warming and oceanic acidification caused by air polluting, fossil-fuel-powered generation sources.

5.9 Traffic and Transportation Resources

The proposed Project and each of the alternatives considered are assumed to have a temporary impact on transportation networks in the Project's vicinity during construction of the Project.

The No Build Alternative is assumed to have no impacts on traffic and transportation resources.

5.10 Noise

The proposed Project and each of the alternatives considered represent a similar noise impact. It is assumed that noise impacts will only be associated with the construction phase of the Project. However, it should be noted that the Buried Overland Alternatives are anticipated to take up to 20 times longer to install, as compared to the proposed Project.

The No Build Alternative is assumed to have no impact on noise.

5.11 Visual / Aesthetics

The proposed Project and the Buried Overland Alternatives will have little to no impact on the visual/aesthetic resources along the routes.

The Overhead Alternatives utilize large overhead transmission towers and require land-clearing activities; therefore, visual/aesthetic resource impacts will be high and permanent.

The No Build Alternative is assumed to result in indirect impacts to visual resources resulting from global warming caused by air polluting, fossil-fuel-powered generation sources because global warming will result in a rise in sea level changing the planet's shorelines. Additionally, GHGs contribute to smog-forming particles, which degrade the viewshed

5.12 Conclusions

The Guidelines established by the USEPA and the Corps require that the applicant demonstrate that there not be a practicable alternative to the proposed Project, which would have a less adverse impact on the environment. The analysis presented above demonstrates that, while the proposed Project would have short-term impacts on some resources, the only long-term impact

would be to cultural resources as there may be parts of the route that include unavoidable areas of cultural sensitivity. However, the other overland alternatives considered, except the No Build Alternative, will also have the same level of unavoidable impact to cultural resources, albeit in different locations, and the siting of the proposed Project within waterways will provide greater flexibility in avoiding such resources than will exist within a railroad right-of-way or transmission corridor. In contrast, the overland alternatives considered would either have similar impacts on a resource or in some cases would result in greater and/or long-term impacts to the resources. Therefore, CHPEI respectfully submits that the proposed Project be considered consistent with the requirements of the Section 404(b)(1) of the Clean Water Act.

Section 6
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HDR | DTA

August 25, 2010

Naomi Handell
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New York, NY 10278-0091

SENT VIA ELECTRONIC MAIL

Re: **Champlain Hudson Power Express Project**
Supplement to Least Environmentally Damaging Practical Alternative Analysis
USACE File Number 2009-01089-EHA

Dear Ms. Handell:

On April 10, 2010, Champlain Hudson Power Express, Inc. ("CHPEI") submitted a report entitled "Least Environmentally Damaging Practical Alternative Analysis for the Champlain Hudson Power Express ("CHPE") Project" in support of a proposed underwater and underground high-voltage direct current transmission system connecting converter stations in Canada to those in Yonkers, New York and Bridgeport, Connecticut ("Project"). This letter will provide an update on the Project scope and respond to questions presented in a letter received from the U.S. Army Corps of Engineers ("USACE") on July 7, 2010.

Project Scope

As originally proposed, the Applicant sought to construct two high voltage direct current ("HVDC") circuits originating at the U.S.-Canadian border near Rouses Point, New York. One of these circuits was proposed to extend to New York City (the "New York Circuit") where it would connect to the existing Sherman Creek substation owned by Consolidated Edison Company of New York, Inc. ("Con Edison"). The other circuit was proposed to extend from Rouses Point to Bridgeport, Connecticut (the "Connecticut Circuit").

As a result of recent discussions with potential anchor tenants for both the Connecticut Circuit and the New York Circuit, CHPEI has determined that the Connecticut Circuit is not financially viable. Accordingly, CHPEI is withdrawing its request for any review or approvals of the Connecticut Circuit and is proceeding solely with respect to the New York Circuit.

In addition to this modification to the overall project scope, there are two route adjustments to report. First, due to concerns raised by the New York State Canal Corporation regarding its ability to grant the type of land rights necessary to build and finance the project, we are now proposing to extend that portion of the route utilizing certain existing railroad easements paralleling the Champlain Canal all the way to Whitehall, New York, thus obviating any need to

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resort to Canal property. Second, due to concerns expressed by Consolidated Edison Company of New York, Inc. ("Con Edison"), we are now proposing to connect to Con Edison's system at a new electric substation currently being constructed by the New York Power Authority on Con Edison property near the site of the former Charles Poletti Power Plant in Astoria, Queens, New York.

Supplemental LEDPA Information

In a recent letter, supplemental information to the Least Environmentally Damaging Practical Alternative ("LEDPA") analysis was requested. In the LEDPA analysis, the proposed Project was compared against the following alternatives:

- Overhead Central New York Route
- Buried Central New York Route
- Buried Railroad Route
- Overhead New England Route
- Buried New England Route

With the removal of the Connecticut Circuit of the Project, the Overland New England and Buried New England routes were determined to be impractical as the New England states transected by the overhead transmission system route would be receiving no direct benefit from the Project. For the purposes of these responses, the Buried Railroad Route will be used as the buried alternative, as it is shorter than the Buried Central New York Route (365 miles to 438 miles) and therefore represents the most conservative assumption.

Below are the responses to USACE's letter dated July 7, 2010.

1. Provide cost benefit analysis of preferred route and upland alternatives.

Based on the sum total of the many analyses performed with respect to the CHPE as currently proposed, CHPEI believes CHPE is the Least Environmentally Damaging Practical Alternative ("LEDPA") when compared to alternative projects. Most recently, CHPEI has evaluated the merits of CHPE relative to an all railroad option ("Railroad Only") and an all overhead option ("Overhead Only").

CHPEI created separate detailed financial models for both the Railroad Only route and the Overhead Only route. After accounting for the differences in capital costs and the varying development and construction periods, CHPEI adjusted the anticipated CHPE tariff—the price that a power producer from Canada would pay in order to ship power on the transmission line—so the Internal Rate of Return ("IRR") for each of the alternatives would match the target IRR for CHPE (Table 1). This table also illustrates the assumptions and results for each of the scenarios.

The table shows that for both of the alternative projects, the initial tariff required is substantially higher than that of CHPE, with or without DOE loan guarantee financing. This analysis confirms that CHPE is the lowest cost alternative. More importantly, CHPEI's conversations to date with Canadian power producers have made it clear that if the alternative options were adopted by

CHPEI, there would be no interest in shipping power given the prohibitive tariffs associated with them. CHPEI can provide the additional proprietary and confidential information to the USACE upon request.

Table 1
Financial Model of CHPE and Alternatives

	CHPE	Railroad ONLY		Overhead ONLY	
DOE Financing	Yes	Yes	No	Yes	No
Development Period (yrs)	1	1	2	10	10
Construction Period (yrs)	3	5	5	2	2
Estimated Capital Costs ($millions)[1]					
Installation of Cables[2]	$386	$870		$464	
Supply of Cables	686	568		n/a	
HVdc Converter Stations	207	207		207	
Hvac Connection	261	261		261	
	$1,539	$1,906		$932	
Tariff as % of CHPE tariff	**n/a**	**150%-170%**	**210%-230%**	**120%-140%**	**140%-160%**

(1) Excludes interest and insurance during construction, other fees and expenses and capital cost contingency.
(2) For the Overhead ONLY option, combined figure for installation and supply of cables.

It should be noted that CHPEI is pursuing financing from the loan guarantee program administered by the U.S. Department of Energy ("DOE") pursuant to the Energy Policy Act of 2005, as amended. Table 1 compares the CHPE tariff with DOE loan guarantee financing with the Railroad Only and Overhead Only alternatives with and without DOE loan guarantee financing. Given the development and construction periods associated with the alternative options, CHPEI believes that the chances of securing DOE loan guarantee financing in connection with either is virtually non-existent. In the Railroad Only case, if DOE loan guarantee financing is not obtained, the analysis assumes it would take one additional year to obtain the necessary financing from the private sector due to the financial constraints of that alternative.

CHPEI believes that the Railroad Only alternative is the more infeasible of the two for a number of reasons. From an economic perspective, it is a very expensive alternative. The capital costs associated with such a project are significantly higher than CHPE and are the primary driver of the higher tariff requirement. The capital costs are higher because of the longer construction period and more intense construction program associated with installation in a railroad right of way as opposed to underwater burial. The other factors causing a higher tariff are the higher operating expenses and the delay in generating positive cash flow due to the two-year delay in the commercial operations date for this alternative relative to CHPE.

Despite the lower capital costs associated with the Overhead Only option, CHPEI believes that there are several factors that cause this alternative to be significantly less attractive than CHPE. The most significant of these would be the extraordinary difficulty associated with obtaining all of the necessary permits and approvals to get this alternative built. As has been the case with many overhead line transmission projects, the opposition by both local communities and environmental groups has prevented many of these projects from being built at all. CHPEI

believes that virtually the entire route associated with the Overhead Only option would be controversial and present significantly more impacts to the environment. The commercial operations date for such a project would be pushed out into the future an additional eight years or more. Thus, CHPEI believes that pursuit of this option would be an extraordinarily arduous process, and it further believes that no sources of development capital sufficient to sustain such an effort exist or are likely to come to exist in the future.

It should also be noted that, given the relatively benign environmental profile of CHPE, a comparison of CHPE with the Overhead Only option and the Railroad Only option can only highlight the advantages of CHPE in this area. Two years after making its original assessment in this regard, CHPEI continues to believe that, when compared to other HVDC electric transmission options that could originate at the U.S./Canadian border and terminate in the New York City area, CHPE is the most cost effective and least environmentally damaging practical alternative.

2. For the proposed alternative, specify the temporary and permanent disturbance to wetlands and waters of the United States.

The transmission cables for the proposed Project route will primarily be buried within waterbodies linking Lake Champlain with the East River as well as within railroad rights-of-way, in wetlands generally classified as estuarine and marine deepwater, forested/shrub, freshwater emergent, pond, lake, and riverine. Therefore, activities associated with proposed Project construction will temporarily and in some cases permanently disturb wetlands along the terrestrial and aquatic portions of the proposed Project route.

The majority of the submarine cable route will be installed/buried to a depth of approximately 3-5 feet using water-jetting techniques, which minimize sediment suspension and/or transport. Minimization of sediment suspension will avoid or minimize impacts to water quality associated with desorbed sediment contamination or turbidity. During the water-jetting process, sediments naturally backfill the trench, and it is anticipated that animal and plant communities in unconsolidated bottom sediments will quickly re-colonize the area. The majority of the proposed Project submarine route is classified as deepwater, lake, or riverine wetlands, which are permanently inundated and where the existing water quality typically experiences periods of naturally occurring increases in suspended sediments (i.e., storm events). No new/non-native sediment or fill material will be deposited during submarine cable installation using water-jetting techniques. Additionally, sediments will not be removed from the trench area for disposal during submarine cable installation using water-jetting techniques. Based on available information, no permanent or long-term impacts on wetlands or water quality are expected from submarine cable installation via water-jetting. In addition, no impacts will occur during cable operation unless cable repair is required.

For sections where water-jetting is not possible for cable installation/burial, “plowing” may be necessary. For the plowing technique, the plow is tethered to a surface support vessel, which tows the plow along the lake/river bed. A trench, approximately 2 ft wide and 3-5 ft deep, is made for each cable by the plow and the cable settles into the trench. Usually, the bottom sediment is allowed to naturally backfill the trench over the cable by slumping of the trench

walls, wave action, or bed load transport of sediments. Where it has been determined that the sediments are not likely to result in adequate backfill over the cable, a backfill plow can be used which employs horizontal blades that capture the sediment pushed off to the sides during plowing and pulls it back into the trench over the cable. Similar to the methods described for water-jetting, no new/non-native sediment or fill material will be deposited during submarine cable installation using plowing techniques. Additionally, unless otherwise required, sediments will not be removed from the trench for disposal. Therefore, submarine cable installation via plowing is considered to have a temporary impact on wetlands and waters, limited to the immediate area and duration of the actual submarine cable installation.

At locations where the transmission cables have been sited within or will cross maintained navigation channels, conventional dredging will likely be required to adhere to specific cable burial depths required by regulatory agencies. In these locations, either a clam-shell dredge or barge-mounted excavator will be used to pre-dredge a trench into which the cable will be laid, with the trench spoil being brought to the surface and placed on barges either for re-use as backfill or for approved disposal. The cables will be laid in the excavated trench and the clam-shell dredge or excavator will place the appropriate amount of sediment back into the trench for cable protection. It is assumed that the removal of dredge materials would represent a permanent impact to wetlands and/or waters of the U.S. The impacts are likely to be consistent with the impacts that result from the periodic maintenance of the navigation channels.

In limited areas along the proposed submarine route, the necessary burial depths for the protection of the cables may not be achievable due to geology (i.e., areas of bedrock) or existing submerged infrastructure crossings (i.e., other electric cables, natural gas pipelines, etc.). There may also be areas where regulatory agencies do not want the cables to be buried. In these instances, the cables will primarily be laid atop the lake/river bottom and will be covered with sloping stone rip-rap or articulated concrete mats. Articulated concrete mats are typically made of small pre-formed blocks of concrete that are interconnected by cables or synthetic ropes in a two-dimensional grid. Another option would be rock trenching vehicle, where cable burial is achieved by cutting a trench through the bedrock or other hard material with a cutting wheel or digging chain. The trench would be approximately four feet deep and one foot wide. It is presumed that the use of rip-rap or concrete mattresses will represent a permanent impact to wetlands and waters of the United States, although this change in conditions will be minimal for areas where bedrock or similar hard bottom are present.

The overland portions of the proposed Project route include a 19 mile terrestrial bypass route to avoid cable installation within the Champlain Canal as well as a 70 mile terrestrial bypass route in Washington, Saratoga, Schenectady, and Albany Counties to avoid interference with activities associated with the Upper Hudson River PCB Dredging Project. The construction sequence along the proposed Project overland routes will typically consist of site preparation and vegetation clearing within the construction corridor (where necessary), followed by the excavation of a trench approximately 3.5 feet deep and up to 9 feet wide at the surface. Erosion and sediment controls will be installed prior to construction.

Construction and operation of the proposed Project will result in primarily temporary impacts to wetlands along the terrestrial portions of the proposed Project route. This may include both direct

impacts, where the edge of the cleared construction corridor traverses a wetland or riparian area, and indirect impacts from vegetation clearing and ground disturbance in adjacent uplands. Waterbody crossings along the proposed Project railroad rights-of-way will typically be constructed by trenching across the waterbody, followed by the restoration of the bed and banks. In some cases, large waterbodies may be crossed using HDD installation techniques, which allows installation without trenching or other surface disturbance. Alternately, where a large waterbody is crossed by a railroad bridge, the railroad company may give permission for the cables to be placed aboveground along the railroad trestle. HDD cable installation techniques will be used for transition at each waterbody exit and entry location, so there should be no impacts to shoreline wetland resources. In order to better compare the potential impacts of the proposed Project route against the overhead alternative route and the buried overland alternative route, the routes were mapped against the U.S. Fish and Wildlife Service National Wetland Inventory and New York State Department of Environmental Conservation wetlands databases (Table 2). The information presented in the table represents a desk-top analysis of readily available information; it does not represent field delineation studies or field verification studies.

In reviewing the table, it is likely that the wetlands impacts along the railroad portion of the proposed Project route and along the Buried Alternative will be temporary while the impacts to forested wetlands along the Overhead Alternative will likely be permanent. The majority of impacts from the submarine installation of the proposed Project route will be temporary, except in those limited cases where conventional dredging (with removal and off-site disposal of sediments or backfill with non-native materials), installation of sloping stone rip-rap or articulated concrete mats, or rock trenching are required. CHPEI is currently reviewing data obtained from the spring 2010 marine route survey to better quantify where this type of work will be required.

Table 2
Wetland Acreages Intersected by the Proposed & Alternative Routes

Cable Route		Proposed Route		Central NY Overhead Transmission Corridor Alternative Route	Buried Railroad Corridor Alternative Route
		Submarine Portion	Railroad Portion		
Corridor Width (feet)[1]		6	10	105	10
NWI Wetlands[2] (acres)	Estuarine and Marine Deepwater	71.22	-	7.19	16.72
	Estuarine and Marine Wetland	-	-	-	1.25
	Forested/Shrub; Freshwater Emergent; Pond	0.61	3.66	245.57	20.09
	Lakes; Riverine	114.54	0.91	50.04	3.95
Total NWI Wetlands			**190.94**	**302.70**	**42.01**
NYSDEC Wetlands in NY[3] (acres)	Freshwater Wetlands	1.01	1.46	200.64	19.03
Total NYSDEC Wetlands			**2.47**	**200.64**	**19.03**

[1] Corridor widths represent an estimated width of direct wetland impacts for each route based on cable installation methods. The Overhead Alternative Route corridor width may range from 60 to 150 ft; therefore, 105 ft represents the average.
[2] No NWI wetland data is available within the Adirondack Park.
[3] No NYSDEC wetland data is available within the Adirondack Park.

3. For the overhead alternatives, specify the temporary and permanent disturbance to wetlands and waters of the United States.

As described in the LEPDA report, CHPEI evaluated a potential overhead HVDC transmission system that would collocate with existing utility rights-of-way extending between Montreal, Canada, and the New York City region. This overhead transmission system would be collocated with existing overhead transmission corridors; however, it is anticipated that the existing transmission line owner(s) would not agree to allow the Project's transmission infrastructure within their rights-of-way or on their towers. Therefore, the construction of a new 345-kV transmission line would potentially require a 60 to 150 ft expansion of the existing rights-of-way to accommodate the CHPE Project infrastructure.

Land acquisitions and vegetation removal would be required to facilitate a construction work area and provide adequate clearance for new conductors. The land clearing for transmission line construction purposes is dependent on the type of tower, topography, span, location, existing utility rights-of-way, and other factors. The precise rights-of-way would vary along sections of the lines. Vegetation clearing activities along the rights-of-way may include cutting, grubbing, or other mechanized/hand-clearing techniques. Additionally, "danger trees" that could potentially damage the conductors would be trimmed, topped, or removed from areas adjacent to the rights-of-way. Vegetation management practices would continue after construction to ensure that the rights-of-way are maintained and that trees posing a threat of danger to the line are eliminated.

The overhead transmission system alternative would utilize a bipolar configuration (one positive and one negative) comprising two conductors per pole and a ground wire. Several different transmission tower configurations may be utilized for overhead transmission lines, which would influence installation techniques and corresponding impacts to wetlands or waters of the U.S. In general, the potential transmission tower types can be defined as "lattice" or "monopole" designs. The specific height and design of each monopole or lattice tower would be determined by the angle of the conductor bundles, the span between towers, and the topography. In general, the lattice or monopole steel support structures would be expected to vary from approximately 65 to 135 feet in height with spans ranging from 600 to 700 feet between monopole towers and 800 to 1,000 feet between lattice towers.

Access roads, lay-down areas, wire-pulling sites, and turnaround areas would also be required along the overhead transmission line to facilitate construction equipment and vehicles. These areas would need to be cleared of vegetation, and additional material may be deposited to ensure that access roads remain passable throughout construction. Trenching may also be necessary along the margins of access roads to avoid rutting.

Each transmission tower location would require a concrete foundation to ensure structural stability of the towers. The specific foundation requirements would be dependent on the geotechnical conditions at each tower location. Foundation size and depth would be decided based on the type of tower structure, load bearing capacity of soils, and other factors. For installation in areas of rock outcroppings, anchor bolts may be installed and a concrete pad poured over and around these anchors. At other locations, steel caissons may be necessary to

create a dry work area that will allow concrete to be poured. Combinations of these techniques may be utilized to install foundations in areas where rock is encountered below grade.

It is anticipated that the land clearing required to establish and maintain a new overhead transmission line corridor would represent a permanent impact to wetlands, particularly forested wetlands. It is expected that access roads and transmission tower foundations would be sited to avoid wetland areas; however, in the event that wetland areas cannot be avoided, activities associated with the construction and maintenance of access roads and transmission tower foundations would be considered permanent fill representing a permanent impact to wetlands and/or waters of the U.S.

4. For the buried overland alternatives, specify the temporary and permanent disturbance to wetlands and waters of the United States.

Wetlands encountered by the Buried Railroad Corridor Alternative Route are generally classified by the USFWS as estuarine and marine deepwater, estuarine and marine wetland, freshwater emergent wetland, freshwater forested/shrub wetland, freshwater pond, lake, or riverine. Cable installation techniques along the Buried Railroad Corridor Alternative Route are considered the same as those described above for the proposed Project's land portion of the cable route. Therefore, impacts to wetlands or waters of the U.S. during cable installation along the Buried Railroad Corridor Alternative Route are considered temporary and are limited to those instances when cable installation activities are occurring. However, as previously discussed, there are financial constraints on burying the transmission cables for the entire route.

5. For the water-jetting method of trench installation, what is the volume of material that would be deposited outside the trench? Provide copies of any surveys, modeling, videos, or other supporting information to verify the level of sediment disturbance.

Modeling Studies are underway to quantify the redistribution of sediments during cable installation using the water-jetting method. A report of these studies will be available when the studies are completed, which is currently anticipated to be in the 3rd quarter of 2010.

6. For other methods of trench installation, such as plowing and dredging, what volume of material would be deposited outside the trench?

Dredging will be used for pre-dredging in the maintained navigation channel in Haverstraw Bay and may be used in other channel crossing and HDD locations. This dredging would use conventional dredging equipment that is currently used for channel maintenance throughout New York/New Jersey Harbor. A study by Tavolaro (1984) of this type of equipment estimated the loss of sediment in both the dredging and ocean placement phase of the dredging process. The estimate for the dredging phase provides an estimate for the potential loss of sediment during dredging associated with cable installation. Tavolaro found that approximately 2% of the material dredged was lost between its excavation from the bottom and placement in the dredge scow. The dredging operation Tavolaro studied did not employ best management practices (BMPs), such as a closing mechanism on the dredge bucket, controlled bucket lift rate, and a restriction on barge overflow.

In addition, for the Neptune Regional Transmission System, TSS monitoring results indicated that TSS concentrations dropped off precipitously from about 140 mg/L to less than 60 mg/L at 300 meters distance from hydro plow operations; however, increases in operational pressures of the hydro plow did appear to result in higher TSS values in silt sediments. TSS values (both derived and direct) were largely at or below background levels.

7. For areas where cables will be laid on the seabed and covered with rip-rap or concrete mats, what volume of material would be used for the protective coverings?

As discussed above, CHPEI is currently reviewing data obtained from the spring 2010 marine route survey to better quantify where this type of work will be required. This information will be provided once it is available, which is currently anticipated to be in the 3rd quarter of 2010.

8. For the proposed route, specify the cable installation distance from the navigation channel boundary.

Where the proposed underwater cable route crosses or is within the Federal Navigation Channel further consultation with the USACE will be held to develop the details of cable installation within the maintained channel. In the upper half of the Hudson Estuary, a dredged channel extends for many miles through relatively shallow water to the Port of Albany. The cable route parallels the dredged channel and crosses the channel in a number of locations, but does not extend any significant distance in the channel. This cable route was selected to avoid the navigation channel to the extent possible, while also avoiding sensitive habitats along the route. The majority of sensitive habitats in this reach are wetlands and embayments, thus the cable was routed between these primarily shoreline features and the navigation channel. The distance between the boundary of the navigation channel and the cable alignment varies continuously over this reach. When the cable is not within or transitioning to/from the channel, the route ranges from 50 to 4000 ft away from the channel boundary. This distance will be coordinated further with USACE and may change as the cable route is refined.

9. The overall analysis of impacts to the environment should be more specific. For example, whenever a disturbance to the benthic environment or aquatic vegetation is discussed, the timeframe for recovery should be specified (instead of saying there will be a quick recovery or complete recovery, use quantitative data and cite references to describe the recovery).

The CHPE proposed underwater cable route has been sited to avoid areas with aquatic vegetation, limiting impacts to unvegetated substrates with various sediment types, as well as areas where rocky outcroppings occur. Sand is the preferred substrate for cable installation, but the cable would be routed through a range of substrate types to minimize overall adverse effects and to access landfall locations.

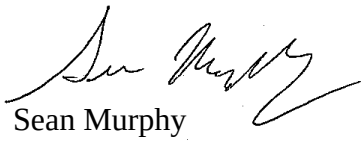
The recovery of benthic communities from disturbance has been extensively studied in coastal marine waters, including estuaries and embayments in temperate climates. These studies have included many instances of physical disturbance associated with various types of excavations of the bottom, including dredging, sandmining, and commercial fishing with nets dredged over the

bottom. These studies address various substrate types and include benthic community assemblages similar to those found in the Hudson, Harlem, and East rivers.

A review of biological resource recovery following disturbance in benthic communities by Newell et al. (1998) brings together studies for many climates and substrate conditions and develops estimates of recovery times. Newell et al. suggest a practical definition of recovery as a community that is capable of maintaining itself in which 80% of the species diversity and biomass has been restored. The studies reviewed show a range of recovery times, but for the majority of substrates along the cable route, substantial recovery would be expected in 1 year and full recovery would be approximately in 2 years. In all substrate types, the habitat retains its ecological functionality because the disturbance associated with cable installation involves a narrow strip through a large area of undisturbed habitat. The routing of the cables was done to avoid habitats where a small disturbance might have far reaching effects. The route selected minimizes adverse impacts and provides for rapid recovery of ecological function.

We thank you for your attention to this matter and are available at any time to provide additional information for your analysis.

Sincerely,



Sean Murphy
Project Manager

ATTACHMENT B
JUNE 2010 DEPARTMENT OF ENERGY NOTICE OF INTENT TO PREPARE AN EIS (W/ROUTE MAPS)

We reference the regulations outlining the terms and conditions of an award in the *Applicable Regulations* section of this notice and include these and other specific conditions in the GAN. The GAN also incorporates your approved application as part of your binding commitments under the grant.

3. *Grant Administration:* Projects funded under this competition are encouraged to budget for a two-day meeting for project directors to be held annually in Washington, DC.

4. *Reporting:* At the end of your project period, you must submit a final performance report, including financial information, as directed by the Secretary. If you receive a multi-year award, you must submit an annual performance report that provides the most current performance and financial expenditure information as directed by the Secretary under 34 CFR 75.118. The Secretary may also require more frequent performance reports under 34 CFR 75.720(c). For specific requirements on reporting, please go to *http://www.ed.gov/fund/grant/apply/appforms/appforms.html.*

5. *Performance Measures:* The Department has established the following Government Performance and Results Act of 1993 (GPRA) performance measures for this program:

(1) For each high school served by the project, the school's graduation rate, as defined in the State's approved accountability plan for Part A of Title I of the ESEA, as well as the graduation rates for the following subgroups:

(A) Major racial and ethnic groups;

(B) Students with disabilities;

(C) Students with limited English proficiency; and

(D) Economically disadvantaged students.

Note: The Department will identify each school's graduation rate, as well as the graduation rates for the subgroups identified in this section, using the data that are now reported to the Department by SEAs using the EDEN Submission System (ESS). Grantees will not be required to provide these data.

(2) The number and percentage of students enrolled in grades 9 through 12 in schools or programs served by the project who, during the most recent school year, earned one quarter of the credits necessary to graduate from high school with a regular diploma.

(3)(A) The number and percentage of students served by the project who had not attended school for 60 or more instructional days immediately prior to their participation in the project; and

(B) The average daily attendance of such students while participating in the project.

(4)(A) The number and percentage of students served by the project during the most recent school year who were two or more years behind their expected age and credit accumulation in high school; and

(B) The number and percentage of such students who earned one half or more of the credits they need to graduate with a regular diploma.

(5) For each school served by the project that includes an eighth grade—

(A) The average daily attendance of such school; and

(B) The number and percentage of students enrolled in the eighth grade who enrolled in ninth grade at the start of the next school year.

These measures constitute the Department's indicators of success for this program. Consequently, we advise an applicant for a grant under this program to give careful consideration to these measures in conceptualizing the approach and evaluation for its proposed project. Each grantee will be required to provide, in its annual performance and final reports, data about its progress in meeting these measures.

VII. Agency Contacts

For Further Information Contact: Theda Zawaiza, U.S. Department of Education, 400 Maryland Avenue, SW., room 3E122, Washington, DC 20202. *Telephone:* (202) 205–3783 or by *e-mail: hsgi@ed.gov.*

If you use a TDD, call the FRS, toll free, at 1–800–877–8339.

VIII. Other Information

Accessible Format: Individuals with disabilities can obtain this document and a copy of the application package in an accessible format (*e.g.,* braille, large print, audiotape, or computer diskette) on request to either program contact person listed under **FOR FURTHER INFORMATION CONTACT** in section VII of this notice.

Electronic Access to This Document: You can view this document, as well as all other documents of this Department published in the **Federal Register,** in text or Adobe Portable Document Format (PDF) on the Internet at the following site: *http://www.ed.gov/news/fedregister.* To use PDF you must have Adobe Acrobat Reader, which is available free at this site.

Note: The official version of this document is the document published in the **Federal Register.** Free Internet access to the official edition of the **Federal Register** and the Code of Federal Regulations is available on GPO Access at: *http://www.gpoaccess.gov/nara/index.html.*

Dated: June 15, 2010.

Thelma Meléndez de Santa Ana,

Assistant Secretary for Elementary and Secondary Education.

[FR Doc. 2010–14732 Filed 6–17–10; 8:45 am]

BILLING CODE 4000–01–P

CHAMPLAIN HUDSON

[OE Docket No. PP–362]

Notice of Intent To Prepare an Environmental Impact Statement and To Conduct Public Scoping Meetings, and Notice of Floodplains and Wetlands Involvement; Champlain Hudson Power Express, Inc.

AGENCY: Department of Energy (DOE).

ACTION: Notice of Intent to prepare an Environmental Impact Statement (EIS) and to conduct Public Scoping Meetings; Notice of Floodplains and Wetlands Involvement.

SUMMARY: The Department of Energy (DOE) announces its intention to prepare an EIS pursuant to the National Environmental Policy Act (NEPA) of 1969, as amended (42 U.S.C. 4321 *et seq.*), the Council on Environmental Quality (CEQ) NEPA regulations (40 CFR parts 1500–1508), and the DOE NEPA implementing procedures (10 CFR part 1021) to assess the potential environmental impacts from its proposed Federal action of granting a Presidential permit to Champlain Hudson Power Express, Inc. (Champlain Hudson) to construct, operate, maintain, and connect a new electric transmission line across the U.S.-Canada border in northeastern New York State. The EIS, *Champlain Hudson Power Express Transmission Line Project Environmental Impact Statement* (DOE/EIS–0447), will address potential environmental impacts from the proposed action and the range of reasonable alternatives.

The purpose of this Notice of Intent (NOI) is to inform the public about the proposed action, announce plans to conduct seven public scoping meetings in the vicinity of the proposed transmission line, invite public participation in the scoping process, and solicit public comments for consideration in establishing the scope of the EIS. Because the proposed project may involve actions in floodplains and wetlands, in accordance with 10 CFR part 1022, *Compliance with Floodplain and Wetland Environmental Review Requirements,* the draft EIS will include a floodplain and wetland assessment as appropriate, and the final EIS or record of decision will include a floodplain statement of findings.

DATES: DOE invites interested agencies, organizations, Native American tribes, and members of the public to submit comments to assist in identifying significant environmental issues and in determining the appropriate scope of the EIS. The public scoping period starts with the publication of this Notice in the **Federal Register** and will continue until August 2, 2010. Written and oral comments will be given equal weight, and DOE will consider all comments received or postmarked by August 2, 2010 in defining the scope of this EIS. Comments received or postmarked after that date will be considered to the extent practicable.

Locations, dates, and start and end times for the public scoping meetings are listed in the **SUPPLEMENTARY INFORMATION** section of this NOI.

Requests to speak at any one or more public scoping meeting(s) should be received by Dr. Jerry Pell at the address indicated below on or before July 6, 2010; requests received by that date will be given priority in the speaking order. However, requests to speak also may be made at the scoping meetings.

ADDRESSES: Comments on the scope of the EIS and requests to be added to the document mailing list should be addressed to: Dr. Jerry Pell, Office of Electricity Delivery and Energy Reliability (OE–20), U.S. Department of Energy, 1000 Independence Avenue, SW., Washington, DC 20585; by electronic mail to *Jerry.Pell@hq.doe.gov;* or by facsimile to 202–318–7761. For general information on the DOE NEPA process contact: Ms. Carol M. Borgstrom, Director, Office of NEPA Policy and Compliance (GC–54), U.S. Department of Energy, 1000 Independence Avenue, SW., Washington, DC 20585; by electronic mail at *askNEPA@hq.doe.gov;* or by facsimile at 202–586–7031.

FOR FURTHER INFORMATION CONTACT: Dr. Jerry Pell at the addresses above, or at 202–586–3362. For general information on the DOE NEPA process, contact Ms. Carol M. Borgstrom at 202–586–4600, leave a message at 800–472–2756, or at the addresses above.

SUPPLEMENTARY INFORMATION: Executive Order (E.O.) 10485, as amended by E.O. 12038, requires that a Presidential permit be issued by DOE before electric transmission facilities may be constructed, operated, maintained, or connected at the U.S. international border. The E.O. provides that a Presidential permit may be issued after a finding that the proposed project is consistent with the public interest and after favorable recommendations from the U.S. Departments of State and Defense. In determining consistency with the public interest, DOE considers the potential environmental impacts of the proposed project under NEPA, determines the project's impact on electric reliability (including whether the proposed project would adversely affect the operation of the U.S. electric power supply system under normal and contingency conditions), and considers any other factors that DOE may find relevant to the public interest. The regulations implementing the E.O. have been codified at 10 CFR parts 205.320–205.329. DOE's issuance of a Presidential permit indicates that there is no Federal objection to the project, but does not mandate that the project be undertaken.

Champlain Hudson applied on January 27, 2010, to DOE's Office of Electricity Delivery and Energy Reliability (OE) for a Presidential permit to construct, operate, maintain, and connect a 2,000-megawatt (MW) high-voltage direct current (HVDC) Voltage Source Converter (VSC) controllable transmission system from the Canadian Province of Quebec to the New York City and Southwestern Connecticut regions. After due consideration of the nature and extent of the proposed project, including evaluation of the "Information Regarding Potential Environmental Impacts" section of the Presidential permit application, DOE has determined that the appropriate level of NEPA review for this project is an EIS.

The proposed Federal action is the granting of the Presidential permit and it is anticipated that the project could significantly affect the quality of the human environment. Because the proposed project may involve actions in floodplains and wetlands, in accordance with 10 CFR part 1022, *Compliance with Floodplain and Wetland Environmental Review Requirements,* the draft EIS will include a floodplain and wetland assessment as appropriate, and the final EIS or record of decision will include a floodplain statement of findings.

DOE invites Tribal governments and Federal, state, and local agencies with jurisdiction by law or special expertise with respect to environmental issues to be cooperating agencies with respect to the EIS, as defined at 40 CFR 1501.6. Cooperating agencies have certain responsibilities to support the NEPA process, as specified at 40 CFR 1501.6(b). The U.S. Army Corps of Engineers (anticipated), the U.S. Environmental Protection Agency Region 2, and the New York State Departments of Environmental Conservation and Public Service are cooperating agencies with respect to this EIS.

In addition, Champlain Hudson applied to DOE on September 12, 2009, for a Federal loan guarantee for the proposed project in response to a DOE competitive solicitation, "Federal Loan Guarantees for Electric Power Transmission Infrastructure Investment Projects," issued under section 1705, Title XVII, of the Energy Policy Act of 2005 (EPAct). Section 406 of the American Recovery and Reinvestment Act of 2009 (the "Recovery Act") amended EPAct by adding section 1705. This section is designed to address the current economic conditions of the Nation, in part by facilitating the development of eligible renewable and transmission projects that commence construction no later than September 30, 2011. DOE is carrying out an evaluation of the application submitted by Champlain Hudson. Should DOE decide to enter into the negotiation of a possible loan guarantee with Champlain Hudson, DOE would use this EIS to meet its NEPA requirements in making a determination of funding.

Applicant's Proposal

The applicant's proposed VSC controllable transmission system consists of two 1,000–MW HVDC bipoles. A bipole consists of two connected submarine or underground cables, one of which is positively charged, and the other negatively charged. In total, four cables would be laid between Quebec, Canada, and a proposed converter station in Yonkers, NY, where one bipole (two cables) would be terminated. The converter station would change the electrical power from direct current to alternating current. The remaining bipole (two cables) would continue to a proposed converter station in Bridgeport, CT. Champlain Hudson's proposed transmission line would connect renewable sources of power generation in Canada with load centers in and around the New York City and southwestern Connecticut regions.

The project would originate at an HVDC converter station near Hydro-Québec TransÉnergie's 765/315-kilovolt (kV) Hertel substation, located southeast of Montreal, and extend approximately 35 miles to the international border between the United States and Canada, crossing in Lake Champlain to the east of the Town of Champlain, NY. Four cables (two bipoles) would extend south under Lake Champlain for approximately 111 miles entirely within the jurisdictional waters of New York State. At the southern end of Lake Champlain, the cables would exit the

water just north of Lock C12 of the Champlain Canal (Canal) in the town of Whitehall, NY, and would be buried within an existing railroad right-of-way owned by Canadian Pacific Railway (CP) for 1.7 miles. The cables would enter the Canal just south of Lock C12 and continue under the Canal for 5.6 miles to Comstock, NY, and then utilize another CP railroad right-of-way for 0.4 miles to circumvent Lock C11. The cables would re-enter the canal just south of Lock C11 and continue under the Canal for 8.9 miles toward Lock C9 in Kingsbury, NY (there is no Lock C10). North of Lock C9, the cables would exit the Canal and would be buried for 0.5 miles within land owned by the New York State Canal Corporation on the eastern shore of Lock C9. The HVDC cables would re-enter the Canal just south of Lock C9 and continue under the Canal for 2.7 miles toward Lock C8 in Fort Edward, NY.

The Upper Hudson River portion of the Hudson River polychlorinated biphenyl (PCB) site (USEPA Identification Number NYD980763841) stretches from Hudson Falls, NY, to the Federal Dam at Troy, NY. To avoid installing and burying HVDC cables within this area, the proposed Project route would exit the Canal north of Lock C8 near Durham Basin, where an existing CP railroad right-of-way is located immediately adjacent to the west of the Canal. Upon exiting the canal, the four cables would be buried for approximately 46.1 miles within the CP railroad bypass route to the west of the Hudson River, traversing the municipalities of Moreau, Northumberland, Wilton, Greenfield, Saratoga Springs, Milton, Ballston, Clifton Park, Glenville, and Schenectady, NY. In the town of Rotterdam, NY, the buried route would transfer to the CSX Railroad (CSX) right-of-way and proceed south for approximately 23.7 miles through the municipalities of Guilderland, New Scotland, Voorheesville, and Bethlehem. The proposed Project route would then exit the railroad right-of-way and enter the Hudson River at the town of Coeymans, NY (about 14 miles south of Albany). In general, when a railroad right-of-way intersects with a waterway, the applicant's preference would be to attach the cables to the bridge structure, particularly for longer crossings such as the bridge over the Mohawk River in Schenectady, NY. If the cables could not be attached to the bridge due to engineering concerns or owner preference, an option would be for the applicant to employ horizontal directional drilling to install high-density polyethylene (HDPE) casings for the cables to use under the waterway.

Upon entering the Hudson River, the four cables would be buried for 118 miles until they reach the City of Yonkers, NY. Two of the four HVDC cables (one bipole) would terminate at the proposed converter station located in Yonkers for a total length of approximately 319 miles from the U.S. border with Canada to Yonkers, NY. The remaining two cables would continue for approximately 66 miles under the Hudson River, Spuyten Duyvil Creek, the Harlem River, and the East River into Long Island Sound before terminating at a converter station near 1 W Avenue in Bridgeport, CT, for at total length of approximately 384.4 miles from the U.S. border with Canada to Bridgeport. This route is discussed below as being Route A, the applicant's preferred alternative.

The Champlain Hudson Presidential permit application, including associated maps and drawings, can be viewed or downloaded in its entirety from the DOE program Web site at *http://www.oe.energy.gov/permits_pending.htm* (see PP–362), or on the project EIS Web site at *http://CHPExpressEIS.org.* Also available at these same locations is the March 5, 2010, **Federal Register** Notice of Receipt of Application (75 FR 10229).

Agency Purpose and Need, Proposed Action, and Alternatives

The DOE proposed Federal action is the granting of a Presidential permit to Champlain Hudson to construct, operate, maintain, and connect a new electric transmission line across the U.S.-Canada border in northeastern New York State. The EIS, *Champlain Hudson Power Express Transmission Line Project Environmental Impact Statement* (DOE/EIS–0447), will address potential environmental impacts from the proposed action and the range of reasonable alternatives. The purpose and need for DOE's action is to decide whether to grant Champlain Hudson said Presidential permit. It should be noted, however, that although the potential environmental impacts are important, they are not the only criteria that form the basis for the final permitting decision. If granted, the Presidential permit would authorize only that portion of the line that would be constructed, operated, and maintained wholly within the United States.

Three action alternatives (routes) for constructing the proposed transmission line inside the United States have been identified by the applicant, and they differ little in total length: 384.5 miles for Route A, 384.2 miles for Route B, and 385.7 miles for Route C. The lines differ, however, in the amount of the line that is submerged or buried underground. Route A, the Champlain Hudson preferred alternative, has approximately 72.4 miles buried underground. Route B has approximately 89.4 miles buried underground, and Route C has about 68.0 miles buried underground. The remaining distances of all routes are submerged. Maps showing all three alternative routes may be found at *http://CHPExpressEIS.org/maps*.

All three routes cross the U.S.-Canada border in Lake Champlain at Rouses Point, NY (which is about five miles east of the Town of Champlain, NY), 35 miles from where they would begin southeast of Montreal, Canada. Route A, the applicant's preferred alternative, is described in detail above.

The Route B alternative is the same as Route A, except that after exiting the water just north of Lock C12 of the Champlain Canal (Canal) in the town of Whitehall, NY, Route B would continue within an existing railroad right-of-way owned by Canadian Pacific Railway (CP) for 19.5 miles through the municipalities of Comstock, Fort Ann, and Kingsbury. Route B would overlap with Route A where Route A exits the Champlain Canal north of Lock C8 near Durham Basin.

Route C is the same as Route A except for a 6.3 mile segment from north of Lock C8 near Durham Basin, where Route A exits the Champlain Canal (Canal) to travel south about 4.8 miles within the CP railroad right-of-way. At the point where Route A would exit the canal, Route C instead would continue under the Canal for 2.9 miles toward Lock C8 in Fort Edward, NY. North of Lock C8, the cables would exit the Canal and would be buried for 0.4 miles within land owned by the New York State Canal Corporation on the eastern shore of Lock C8. The HVDC cables would re-enter the Canal just south of Lock C8 and continue under the Canal for 2.1 miles towards Lock C7, also located in Fort Edward, NY. North of Lock C7, the cables would exit the eastern side of the canal and be buried for 0.2 miles within land owned by the New York State Canal Corporation before entering the Hudson River to the south of Rogers Island, where the Hudson River flows parallel to the Champlain Canal. The four cables would be buried under the Hudson River, and Route C would travel in a northern direction under the river to the west of Rogers Island for 0.7 miles before reaching the CP railroad bridge

that extends roughly southwest over the Hudson River from Fort Edward, NY toward Moreau, NY. The cables would exit the water on the west side of the Hudson River and Route C would overlap with Route A at the same point where Route A would transition from being attached to the bridge structure to being buried within the railroad right-of-way in the town of Moreau. This alternative assumes that PCB dredging activities associated with the Hudson River Dredging Project planned for the area around Rogers Island are completed by 2013. (The northern tip of Rogers Island is about one-quarter of a mile west of Fort Edward. Overall, the Island is just less than one mile in length.)

Champlain Hudson is also considering two alternative substations identified as feasible points of interconnection in New York, regardless of the alternative route: The Gowanus 345-kV substation, located in New York County, and the Astoria (Polleti) 345-kV substation, located in Queens County. An alternative site under consideration for the DC–AC converter station in Queens County is land adjacent to the Astoria substation. In Connecticut, 60 Main Street in Bridgeport has been identified as a possible alternative site for the converter station.

Under the No Action alternative, DOE would deny Champlain Hudson's application for a Presidential permit for the proposed international electric transmission line.

Identification of Environmental Issues

The EIS will examine public health and safety effects and environmental impacts in the U.S. from the proposed HVDC transmission facilities. This notice is intended to inform agencies and the public of the proposed project, and to solicit comments and suggestions for consideration in the preparation of the EIS. To help the public frame its comments, the following is a preliminary list of several potential environmental issues in the U.S. that DOE and Champlain Hudson have tentatively identified for analysis, including:

1. *Impacts on protected, threatened, endangered, or sensitive species of animals or plants, or their critical habitats:* The EIS will consider the effects of the construction and operation of the project on essential fish habitats and species, including the shortnose sturgeon (Federally listed endangered species), leatherback sea turtle (Federally listed endangered species), loggerhead sea turtle (Federal listed threatened species), green sea turtle (Federal listed threatened species), and Atlantic sturgeon (Federally listed candidate species as of October 17, 2006).

2. *Impacts on aquatic biological resources:* The EIS will consider the effects of the construction and operation of the project on shellfish, benthic communities, finfish, and commercial and recreational fisheries, and the potential for introduction of invasive species.

3. *Impacts on floodplains and wetlands:* The EIS will consider the effects of the construction and operation of the project on wetlands and on freshwater, tidal, and estuarine floodplains. The portions of all three alternative routes that utilize the CP railroad right-of-way would cross Federal Emergency Management Agency-mapped floodplains associated with the Champlain Canal and the Hudson River. The routes cross the Mohawk River within the City of Schenectady, but an option under consideration is the possible suspension of the cables from the railroad bridge, such that they would not be buried within the floodplain. The underground connection to the Yonkers and Bridgeport converter stations utilized by all three route alternatives would cross bordering floodplain at the landfall locations. Portions of the Sherman Creek East substation site and the underground connection to the substation are located in floodplain associated with the Harlem River in New York City. Limited wetland delineations and available New York State mapping resources indicate that less than 15 acres of wetlands would be temporarily impacted within the construction corridor along the underground portions of Routes A, B, and C.

4. *Impacts on cultural or historic resources:* The EIS will consider the effects of the construction and operation of the project on shipwrecks and National Historic Landmarks; e.g., the proposed transmission cable route travels through the boundary of the Crown Point and Fort Ticonderoga National Historic Landmarks. The project facilities would also be located within National Heritage Areas and New York State Heritage Areas, including the Mohawk Valley Heritage Corridor and the RiverSpark (Hudson-Mohawk) Heritage Area.

5. *Impacts on human health and safety:* The EIS will consider the nature and effects of electric and magnetic fields that may be generated by the construction and operation of the project.

6. *Impacts on air quality:* The EIS will consider the effects of the construction and operation of the project on air quality, including the emission and effects of greenhouse gases such as carbon dioxide.

7. *Impacts on soil:* The EIS will consider the effects of the construction and operation of the project on the loss or disturbance of soils.

8. *Impacts on water quality:* The EIS will consider the effects of the installation and operation of the transmission cables on water quality due to potential re-suspension of sediments and contaminants, including PCBs in the Hudson River.

9. *Impacts to land use:* The EIS will consider the effects of the installation and operation of the project on land uses, including agricultural lands, parks, and public lands.

10. *Visual impacts:* The EIS will consider the effects of the installation and operation of the project on visual resources of any above-ground components of the project, including near the locations of the two converter stations.

11. *Noise impacts:* The EIS will consider the effects of the installation and operation of the project on noise levels near the locations of the two DC-to-AC converter stations.

12. *Socioeconomic impacts:* This EIS will consider impacts on community services.

13. *Environmental justice:* The EIS will include consideration of any disproportionately high and adverse impacts on minority and low-income populations.

This list is not intended to be all inclusive or to imply any predetermination of impacts. DOE invites interested parties to suggest specific issues within these general categories, or other issues not included above, to be considered in the EIS.

Scoping Process

Interested parties are invited to participate in the scoping process, both to help define the environmental issues to be analyzed and to identify the range of reasonable alternatives. Both oral and written comments will be considered and given equal weight by DOE, regardless of how submitted. Public scoping meetings will be held at the locations, dates, and times as indicated below:

1. *Bridgeport, CT:* Bridgeport City Hall, 45 Lyon Terrace, Bridgeport, CT 06604; 7–9 p.m., Thursday, July 8, 2010.

2. *New York City, NY:* U.S. Environmental Protection Agency, 290 Broadway, Room 27A (27th floor, conference room A), New York, NY 10007; 2–4 p.m., Friday, July 9, 2010. It is important to note that this is a secure building: all carried items, *e.g.,*

handbags and backpacks, will be X-rayed and visitors will pass through a metal detector.

3. *Yonkers, NY:* Royal Regency Hotel, 165 Tuckahoe Road, Yonkers, NY 10710; 7–9 p.m., Monday, July 12, 2010.

4. *Kingston, NY:* Holiday Inn Kingston NY, 503 Washington Avenue, Kingston, NY 12401; 7–9 p.m., Tuesday, July 13, 2010.

5. *Albany, NY:* The Holiday Inn Albany at Wolf Road, 205 Wolf Road, Albany, NY 12205; 7–9 p.m., Wednesday, July 14, 2010.

6. *Glens Falls, NY:* Ramada Glens Falls/Lake George Area, 1 Abby Lane (exit 19 off I–87), Queensbury, NY 12804; 7–9 p.m., Thursday, July 15, 2010.

7. *Plattsburgh, NY:* Plattsburgh North Country Chamber of Commerce, 7061 State Route 9, Plattsburgh, NY 12901; 7–9 p.m., Friday, July 16, 2010.

The scoping meetings will be structured in two parts: First, an informal discussion "workshop" period that will not be recorded; and, second, the formal taking of comments with transcription by a court stenographer. The meetings will provide interested parties the opportunity to view proposed project exhibits, ask questions, and make comments. Applicant, DOE, and any cooperating agency representatives will be available to answer questions and provide additional information to attendees to the extent that additional information is available at this early stage of the proceedings.

Persons submitting comments during the scoping process, whether orally or in writing, will receive either paper or electronic copies of the Draft EIS, according to their preference. Persons who do not wish to submit comments or suggestions at this time but who would like to receive a copy of the document for review and comment when it is issued should notify Dr. Jerry Pell as provided above, with their paper-or-electronic preference.

EIS Preparation and Schedule

In preparing the Draft EIS, DOE will consider comments received during the scoping period. As noted above, comments can be submitted by various means, and will be given the same consideration. They can be submitted to Dr. Jerry Pell either electronically or by paper copy; if the latter, consider using a delivery service because materials submitted by regular mail are subject to security screening, which both causes extended delay and potential damage to the contents. (Warped and unusable CD or DVD discs are common.) Additionally, comments can be submitted through the project Web site established for preparation of the EIS, at *http://CHPExpressEIS.org.* This site will also serve as a repository for all public documents and the central location for announcements. Individuals may subscribe to the "mail list" feature on the project Web site in order to receive future announcements and news releases.

DOE will summarize all comments received in a "Scoping Report" that will be available on the project Web site and distributed either electronically to all parties of record for whom we have an e-mail address, or by mailing paper copies upon request.

Issued in Washington, DC, on June 14, 2010.

Patricia A. Hoffman,

Principal Deputy Assistant Secretary, Office of Electricity Delivery and Energy Reliability.

[FR Doc. 2010–14760 Filed 6–17–10; 8:45 am]

BILLING CODE 6450–01–P

DEPARTMENT OF ENERGY

International Energy Agency Meetings

AGENCY: Department of Energy.

ACTION: Notice of Meetings.

SUMMARY: The Industry Advisory Board (IAB) to the International Energy Agency (IEA) will meet on June 29, 2010, at the headquarters of the IEA in Paris, France, in connection with a joint meeting of the IEA's Standing Group on Emergency Questions (SEQ) and the IEA's Standing Group on the Oil Market (SOM) on June 29; and on June 30 in connection with a joint SEQ/SOM Workshop on the Release of Industry Stocks on June 30 and a meeting of the SEQ on June 30 and continuing on July 1.

DATES: June 29–July 1, 2010.

ADDRESSES: 9, rue de la Fédération, Paris, France.

FOR FURTHER INFORMATION CONTACT: Diana D. Clark, Assistant General for International and National Security Programs, Department of Energy, 1000 Independence Avenue, SW., Washington, DC 20585, 202–586–3417.

SUPPLEMENTARY INFORMATION: In accordance with section 252(c)(1)(A)(i) of the Energy Policy and Conservation Act (42 U.S.C. 6272(c)(1)(A)(i)) (EPCA), the following notice of meeting is provided:

Meetings of the Industry Advisory Board (IAB) to the International Energy Agency (IEA) will be held at the headquarters of the IEA, 9, rue de la Fédération, Paris, France, on June 29, 2010, beginning at 9:30 a.m. and continuing on June 30 at 8:30 a.m.; and on June 30, commencing at 2:30 p.m. and continuing on July 1, 2010, at 9:30 a.m. The purpose of this notice is to permit attendance by representatives of U.S. company members of the IAB at a joint meeting of the IEA's Standing Group on Emergency Questions (SEQ) and the IEA's Standing Group on the Oil Market (SOM) on June 29, which is scheduled to be held at the headquarters of the IEA commencing at 9:30 a.m., and a joint SEQ/SOM Workshop on the Release of Industry Stocks, which is scheduled to be held at the same location beginning at 9 a.m. on June 30. The IAB will also hold a preparatory meeting among company representatives at the same location at 8:30 a.m. on June 30. The agenda for this preparatory meeting is to discuss the SEQ/SOM meeting and to review the agendas of the SEQ/SOM workshop and the 130th SEQ meeting, to be held on June 30–July 1.

The agenda of the joint SEQ/SOM meeting on June 29 is under the control of the SEQ and the SOM. It is expected that the SEQ and the SOM will adopt the following agenda:

1. Adoption of the Agenda.
2. Approval of the Summary Record of the March 2010 Joint Meeting.
3. The 2011–2012 Program of Work for the SOM and SEQ.
   —Priority Setting Exercise.
   —Governing Board Brainstorming.
4. The Medium-Term Oil Market Report.
5. Report on the International Energy Forum.
6. Update on the Medium-Term Gas Market Report.
7. Other Business.

The agenda of the SEQ/SOM workshop on June 30 is under the control of the SEQ and the SOM. It is expected that the SEQ and the SOM will adopt the following agenda:

1. Introduction by the IEA Secretariat.
2. Introduction by the Chairman.
3. Session 1—Industry Stockholding Obligation.
   —How do we assure the availability of such stocks in a crisis? How are industry emergency stocks related to minimum operating requirements?
4. Session 2—The Government Measures to Make Industry Obligatory Stockholding Available to the Market.
   —What other measures are available besides lowering the obligation for industry to hold stocks? Does the lowering of the obligation need to be more focused than just a uniform reduction across all companies, for all fuels? What is the minimum

Route B

Preferred Project Route

Route C

C12

C11

C9

C8

C7

CHAMPLAIN HUDSON EXPRESS ROUTE
PREFERRED ROUTE & ALTERNATIVES

General Location Map

Legend

- Converter Station
- NYS Canal Lock
- Substation
- Preferred Project Route (A)
- Route B
- Route C

N

0 10 20 30 40 50 Miles

Source Data:ESRI World Topo 2009;

ATTACHMENT C
OCTOBER 2010 NEW YORK STATE DEPARTMENT OF PUBLIC SERVICE LETTER REGARDING ALTERNATIVES

STATE OF NEW YORK DEPARTMENT OF PUBLIC SERVICE

THREE EMPIRE STATE PLAZA, ALBANY, NY 12223-1350

www.dps.state.ny.us

October 27, 2010

Via E-Mail

Hon. Michelle Phillips, ALJ
Department of Public Service
Three Empire State Plaza, 3rd floor
Albany, New York 12223

Hon. Kevin Casutto, ALJ
Department of Public Service
Three Empire State Plaza, 3rd floor
Albany, New York 12223

RE: Case 10-T-0139 – Application of Champlain Hudson Power Express, Inc. for a Certificate of Environmental Compatibility and Public Need Pursuant to Article VII of the PSL for the Construction, Operation and Maintenance of a High Voltage Direct Current Circuit from the Canadian Border to New York City.

Dear Judges Phillips and Casutto:

The Staff of the Department of Public Service designated to represent the public interest in this proceeding (DPS Staff) submits this letter to identify alternative route segments and an alternative converter station site that we would support if the Commission were to make the statutory findings specified in §126(1) of the Public Service Law that are not related to the routing of the transmission facility. As indicated in our letter to you dated October 25, 2010, we consider reasonable all the alternative routes described in the application filed by Champlain Hudson Power Express, Inc. (CHPEI or Applicant) that were not specifically stated to be unreasonable.[1] DPS Staff also believes that the alternatives identified herein are reasonable. At

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[1] Tyminski v. Public Service Commission, 38 N.Y.2d 156, 159-60 (1975). As the court explained: "The Legislature recognized that the commission must be given the basic information necessary to evaluate the advantages and drawbacks of both the proposed facility and any reasonable alternatives. Accordingly, in addition to the impact study on the primary proposal, the applicant must supply a description of alternatives, a description of the comparative merits and detriments of each location, and a statement of the reasons why the primary proposal was deemed the best suited for the facility. [The Legislature mandated] that the applicant produce descriptions of reasonable alternatives, and an explanation of why the alternatives are unsatisfactory."

this time, therefore, the parties' focus as it relates to alternative routes (whether in settlement negotiations or litigation) should be on the alternatives identified by CHPEI and those described herein and in the attached maps. We note that the Hudson River Western Rail Line Route would pass through the Villages of Ravena, Catskill and West Haverstraw, which were not served with the application as supplemented. It also appears that neither New York State Department of Transportation (NYSDOT) nor the counties of Clinton, Essex, Warren, Washington, Saratoga, Schenectady, Albany, Rensselaer, Columbia, Greene, Ulster, Dutchess, Putnam, Orange, Rockland, Westchester, Bronx, New York, and Queens, which are affected by CHPEI Preferred Route or reasonable alternatives thereto, were served with a copy of the application as supplemented. The ALJs should require service on these municipalities and NYSDOT, as well as on the US Army (due to the proximity of the line routes to the US Military Academy at West Point).

Hudson River Western Rail Line Route

DPS Staff has identified an Alternative Route called the "Hudson River Western Rail Line Route". It begins at milepost (MP) 199.5 in the Town of Bethlehem, Albany County, and follows within the railroad rights-of-way of the River Subdivision of CSX Transportation to the west of the Hudson River. It rejoins CHPEI's Preferred Route into the Hudson River in the vicinity of MP 302 in the Town of Clarkstown, Rockland County. Most of the Hudson River Western Rail Line Route has been identified by the Applicant on Figure 3.6-5 in Exhibit 3 of the application as part of Section 3.6.1.6, which describes the Underground Cable Alternative from Canada to New York City. DPS Staff has identified this route as a reasonable alternative to locating the proposed cables in about 100 miles of the Hudson River because it would avoid adversely affecting the Hudson River habitats and navigation.

Harlem River Rail Route

DPS staff has identified an Alternative Route called the "Harlem River Rail Route". The Harlem River Rail Route begins at CHPEI MP 323.4, in the Hudson River in the Bronx, and makes landfall at Spuyten Duyvil, and then proceeds along the Metropolitan Transit Authority and NYSDOT railroad corridor along the northerly and easterly banks of the Harlem River for approximately six miles to the rail yards west of Willis Avenue, where it joins the alignment of the Hell Gate Bypass Route, described below. DPS Staff has identified this route as

an alternative to locating the proposed electric transmission cables in six miles of the Harlem River, where engineering constraints and environmental conditions may limit constructability.

Hell Gate Bypass Route and Bronx Converter Station Site

DPS staff has identified an alternative route called the "Hell Gate Bypass Route". The Hell Gate Bypass Route begins at CHPEI MP 330.1 in the Harlem River, north of the Willis Avenue Bridge, and proceeds easterly to landfall at the NYSDOT railroad corridor and rail yards, following the rail corridor along the northerly side of the Bronx Kill to the East River. This route proceeds southeasterly across the East River to landfall at the power plant complex at Lawrence Point in Astoria, Queens, rejoining CHPEI's Preferred Route at MP 333.9. DPS Staff has identified the Hell Gate Bypass Route as an alternative to locating the proposed electric transmission cables in a longitudinal occupancy of the Hell Gate reach of the East River, where engineering constraints and environmental conditions may limit constructability. Furthermore, this alternative would minimize conflicts with proposed development of renewable hydrokinetic energy projects in the East River. This alternative route is 10,000 feet shorter than the corresponding segment of CHPEI's Preferred Route.

DPS staff has identified an alternative Converter Station Site that coincides with the Hell Gate Bypass Route. The site is located at the north side of the Bronx Kill west of the TriBorough Bridge on vacant land of the New York City Department of General Services identified as Lot 1 in Block 2543. The site is zoned as M3-1, and the lot is listed as being in excess of 8 acres in extent. The Bronx Converter Station site was identified as a heavy industrial zoned parcel which is located near the proposed terminus of the CHPEI facility in an area of existing transportation and utility uses.

Very truly yours,

/s/

Steven Blow
Assistant Counsel

cc: Secretary Brilling
All Parties

NEW YORK STATE
DEPARTMENT OF PUBLIC SERVICE

CASE: 10-T-0139
HUDSON RIVER WESTERN RAIL LINE

Alternative Route
Proposed Route

0 1 2 4 6 8 Miles

October 27, 2010
GIS Unit -DC

Sheet 1 of 2

NEW YORK STATE
DEPARTMENT OF PUBLIC SERVICE

CASE: 10-T-0139
HUDSON RIVER WESTERN RAIL LINE

Alternative Route
Proposed Route

N

0 1 2 4 6 8 Miles

October 27, 2010
GIS Unit -DC

Sheet 2 of 2

NEW YORK STATE
DEPARTMENT OF PUBLIC SERVICE

CASE: 10-T-0139

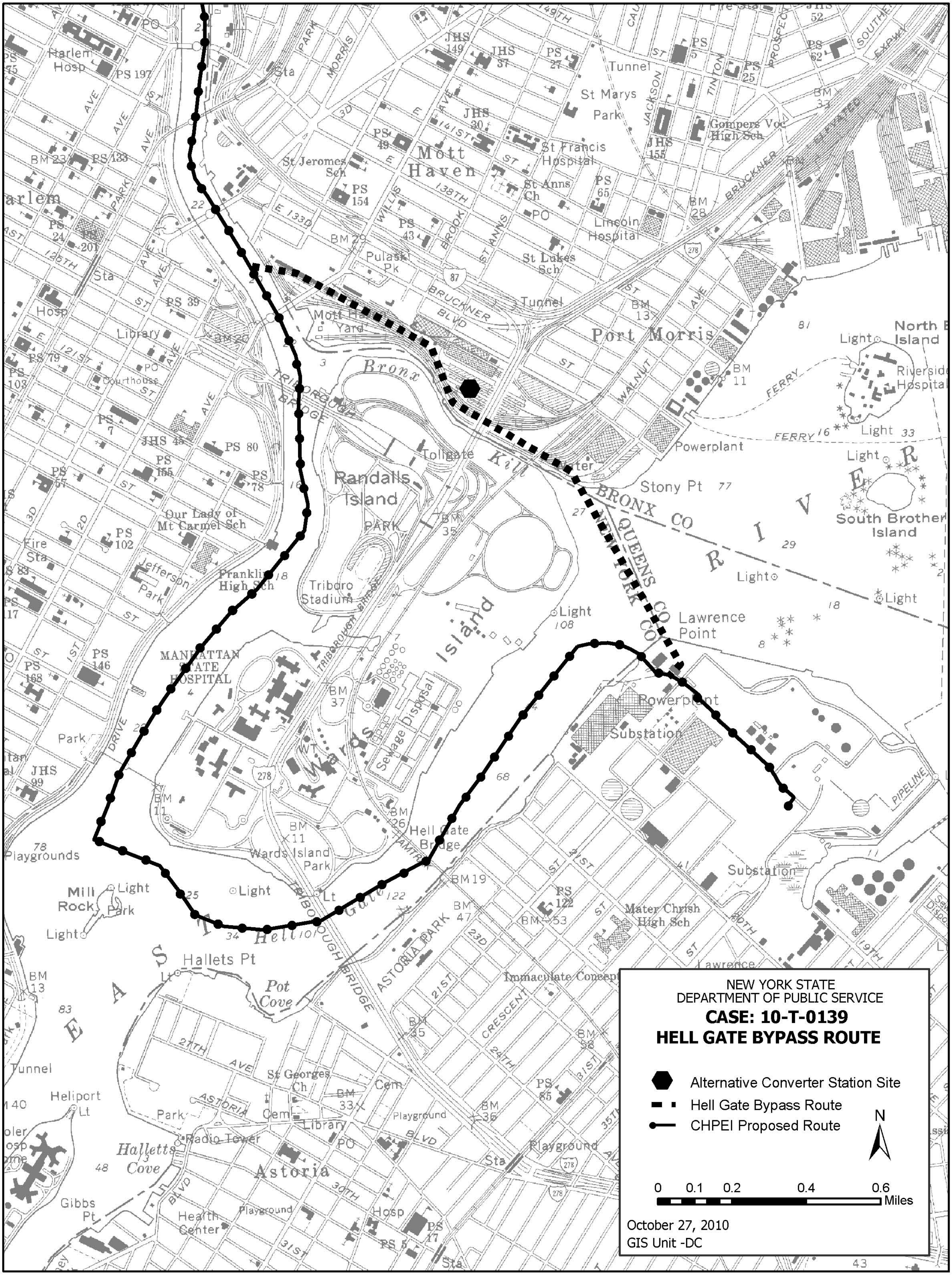
HARLEM RIVER RAIL ROUTE

- Alternative Converter Station Site
- Harlem River Rail Route
- Hell Gate Bypass Route
- CHPEI Proposed Route

N

0 750 1,500 3,000 4,500 Feet

October 27, 2010
GIS Unit -DC


NEW YORK STATE
DEPARTMENT OF PUBLIC SERVICE
CASE: 10-T-0139
HELL GATE BYPASS ROUTE
Alternative Converter Station Site
Hell Gate Bypass Route
CHPEI Proposed Route
N
0 0.1 0.2 0.4 0.6
Miles
October 27, 2010
GIS Unit -DC
Mott Haven
Port Morris
Randalls Island
Wards Island
Bronx Kill
Hell Gate
Astoria
North Brother Island
South Brother Island
Riverside Hospital
Lawrence Point
Stony Pt
Hallets Pt
Pot Cove
Halletts Cove
Mill Rock Park
Manhattan State Hospital
Triboro Stadium
Sewage Disposal
Wards Island Park
Hell Gate Bridge
Triborough Bridge
Powerplant
Substation
Tollgate
Lincoln Hospital
St Francis Hospital
St Marys Park
Pulaski Pk
Jefferson Park
Astoria Park
Bronx Co
Queens Co
New York Co
East River