

**UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION**

APPLICATION FOR PRELIMINARY PERMIT

**City of New York
West of Hudson Hydroelectric Project**

Project No. P-13287

March 1, 2012

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FEDERAL ENERGY REGULATORY COMMISSION

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1. *Initial Statement*

The City of New York (“City”) applies to the Federal Energy Regulatory Commission (“Commission”) for a new, successive preliminary permit for two of the developments that comprise its proposed West of Hudson Hydroelectric Project (“Project”), as described below and in the attached exhibits. This application is made in order to secure and maintain the City’s priority of application for a license or exemption from licensing for the parts of the Project discussed herein under Part I of the Federal Power Act while obtaining the data and performing the acts required to determine the feasibility of the Project and to support its application(s) for a license or exemption.

On September 15, 2008, the City first applied to the Commission for a preliminary permit for the Project. The Project, as then proposed, consisted of four developments – the Cannonsville Development (Cannonsville Reservoir and Cannonsville Dam), the Pepacton Development (Pepacton Reservoir and Downsville Dam), the Neversink Development (Neversink Reservoir and Neversink Dam), and the Schoharie Development (Schoharie Reservoir and Gilboa Dam). The Commission awarded the City a preliminary permit on March 20, 2009.¹

The City diligently proceeded to assess the feasibility, constructability, and potential environmental impacts associated with the Project. The City retained technical consultants, performed on-site inspections, reviewed pertinent historical and technical documents, conducted research of studies from other hydroelectric projects and scientific investigations, and completed environmental studies. In addition, the City and its consultants analyzed several equipment options and design alternatives and evaluated other issues associated with the Project. The City held multiple meetings with the public and interested parties to share information about the Project and solicit their comments and concerns. In addition, the City hosted a public site visit to each Development site, established a website with information on the Project, and consulted

¹ *City of New York and Delaware County Electric Cooperative*, 126 FERC ¶ 62,215 (2009) (“2009 Preliminary Permit”).

with resource agencies.² The input received from these agencies has been incorporated into the City's analyses and studies.

On September 20, 2011, the City filed with the Commission for review and comment a draft application for an original license for the Cannonsville Development and draft applications for exemption from licensing for the Pepacton and Neversink Developments.³ Copies of these draft applications were provided to the resource agencies, posted on the New York City Department of Environmental Protection's ("DEP") web site, and, upon request, to other stakeholders and interested parties. In late December 2011, the NYSDEC, USFWS, Commission Staff, and Delaware County Board of Supervisors provided comments on the drafts to the City. The City will address each comment, either through additional analysis, language changes in the final application(s), or explanatory responses to be included as part of the final application(s).⁴

The City's studies and analyses included evaluations of the environmental impacts of the Project, socioeconomic considerations, and archeological investigations. The City also evaluated whether and how the proposed facilities would be able to interconnect with the electric grid. While many of the studies and analyses were commenced soon after receipt of the 2009 Preliminary Permit, the interconnection analysis could not be undertaken until the conceptual design of each generating facility was completed and the approximate electrical output could be determined.

The Cannonsville Development is proposed to be connected to a transmission line owned by New York State Electric & Gas Corporation ("NYSEG"). Because New York's transmission system is operated by the New York Independent System Operator, Inc. ("NYISO"), it was a relatively straightforward exercise for the City's consultants to obtain access to the information needed to conduct a fatal flaw analysis of the ability of that hydroelectric facility to connect to the electric grid.

The Pepacton and Neversink Developments are proposed to be connected to NYSEG's nearby distribution circuits. Details on NYSEG's distribution system are not available to consultants, meaning that only NYSEG could conduct the interconnection analysis. In 2011, the City submitted to NYSEG the information it required to conduct that analysis. Recently, NYSEG

² The resources agencies consulted were the New York State Department of Environmental Conservation ("NYSDEC"), United States Fish and Wildlife Service ("USFWS"), and National Marine Fisheries Service ("NMFS").

³ As indicated in the status reports provided by the City to the Commission, the City has not identified a feasible design for a hydroelectric facility at the Schoharie Development. Therefore, the City does not intend to proceed any further with that Development, either via this new preliminary permit or a license or exemption application.

⁴ On February 29, 2012, the City filed an application for an original license with the Commission for the Cannonsville Development, now referred to as the Cannonsville Hydroelectric Project.

provided its preliminary results to the City. At Pepacton, NYSEG determined that the hydroelectric facility's output exceeded the capacity of the distribution circuit. At Neversink, although the hydroelectric facility's output would not exceed the capacity of the distribution circuit, it exceeds NYSEG's operating criteria. In both cases, NYSEG determined that the distribution circuits would need to be upgraded. However, NYSEG did not provide any details regarding the potential scope of the necessary upgrades.

The City asked its electrical engineering consultants to review NYSEG's analysis and determine the potential scope of the work required to interconnect the two hydroelectric facilities. Because of the lack of detail provided by NYSEG, they could not provide anything definitive. However, based on the information provided, it appears that the upgrades may include replacement of the poles, cross arms, insulators, conductors, and associated equipment that comprise the distribution circuits.

These Developments, and the distribution circuits, are located in rural areas. Therefore, there is a significant distance from the Developments to the substations to which the distribution circuits are connected. As a result, the cost of the upgrades could be substantial. Additionally, the City had not conducted any analysis of the potential environmental impacts associated with the construction of new distribution circuits.

Given these circumstances, and the implications they have on the feasibility of these two Developments, the City decided to seek a new, successive preliminary permit rather than proceed with its applications for exemptions from licensing for these Developments. Doing so will provide the City the opportunity to conduct the technical, environmental, and economic analyses necessary to evaluate the implications of this new information. This approach will provide the City more time to obtain better information from NYSEG as to the potential scope and cost of the work required. After the City completes its additional studies and analyses, it will determine how it will proceed regarding these Developments.

Accordingly, the City makes this application in order to obtain a new, successive preliminary permit for the portion of the Project that includes the Pepacton and Neversink Developments, and to secure and maintain the City's priority of application for licenses or exemptions from licensing for these Developments under Part I of the Federal Power Act while it conducts the analyses described above.

In its 2008 application for a preliminary permit, the City provided a brief overview of its conceptual plans for the proposed Project. Over the past three years, the City's plans have been revised and refined. The draft exemption from licensing applications the City filed last September contain the latest and most comprehensive information the City has developed regarding the Developments. To avoid unnecessary duplication of its prior efforts, in lieu of providing a revised discussion of its plans, potential energy analysis, water and other environmental impacts, and other salient factors associated with the proposed Project, the City hereby incorporates by reference into this application the studies and other factual information contained in those draft applications. The combination of the information in the draft applications and that set forth below provides all of the information required to be included in an

application for a preliminary permit, including a comprehensive description of the proposed Project, its attributes, and its potential impacts.

Because the City is a municipality, it again claims a municipal preference under Section 7(a) of the Federal Power Act and 18 C.F.R. § 4.37 related to this application.

For purposes of this application, the proposed Project consists of the Pepacton and Neversink Hydroelectric Developments. Both Developments are located on water supply reservoirs built and owned by the City and maintained and operated by DEP. The Pepacton Development includes the Downsville Dam, Pepacton Reservoir, certain lands surrounding the Reservoir, low-level release works constructed in a chamber below a building adjacent to the Dam, tailrace, and stilling basins. Waters released from the Pepacton Development flow to the East Branch of the Delaware River. The Neversink Development includes the Neversink Dam, Neversink Reservoir, certain lands surrounding the Reservoir, intake structure, low-level release works constructed under the intake structure and in a chamber adjacent to that structure, tail race, and stilling basins. Waters released from the Neversink Development flow to the Neversink River.

The City's entire water supply system, which includes other water supply reservoirs, provides high quality drinking water to approximately 9,000,000 New York State residents (approximately 50% of the State's total population). It is therefore critical that the proposed hydroelectric facilities be designed and operated in a manner that simultaneously maintains the crucial water supply system in accordance with drinking water needs, conservation and directed releases, water quality standards and various other conditions affecting the system, including determinations by the U.S. Environmental Protection Agency and the Delaware River Basin Commission ("DRBC"). Granting a new, successive preliminary permit will allow the City time to complete its analyses and evaluations, as described above, so that these simultaneous obligations and goals are appropriately addressed.

2. *The location of the proposed project:*

A. Pepacton Development

State or territory: New York
County: Delaware
Townships: Colchester, Andes, and Middletown
Stream: East Branch Delaware River

B. Neversink Development

State or territory: New York
County: Sullivan
Townships: Neversink and Fallsburg
Stream: Neversink River

3. *Exact name, business address, and telephone number of the applicant:*

City of New York, acting through
New York City Department of Environmental Protection
59-17 Junction Blvd.
Flushing , NY 11373-5108
718-595-6529

The exact name and business address of each person authorized to act as agent for the applicant in this application is:

Hon. Carter H. Strickland, Jr.
Commissioner
New York City Department of Environmental Protection
59-17 Junction Blvd.
Flushing, NY 11373-5108
cstrickland@dep.nyc.gov

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Chief of Staff – Operations
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540 Broadway
P.O. Box 22222
Albany, New York 12201
Tel: (518) 426-4600
Fax: (518) 426-0376
gbissell@couchwhite.com

4. *Statement of Authority:*

The City of New York is a municipality and claims preference under Federal Power Act § 7(a) and 18 C.F.R. § 4.37. Section 24-302 of the Administrative Code of the City of New York provides that the DEP Commissioner shall have the duty to protect the City's water supply and adjacent lands from injury and nuisance, and to maintain all structures and property associated with the water supply. Section 24-364 of the Administrative Code of the City of New York provides that DEP may utilize the waters comprising the water supply system for the purpose of generating electricity for the use by the City. Documentation supporting the City's status as a municipality is provided in Exhibit 5.

5. *Term of Permit:*

The proposed term of the permit is three (3) years.

6. *Existing Dams or Other Project Facilities:*

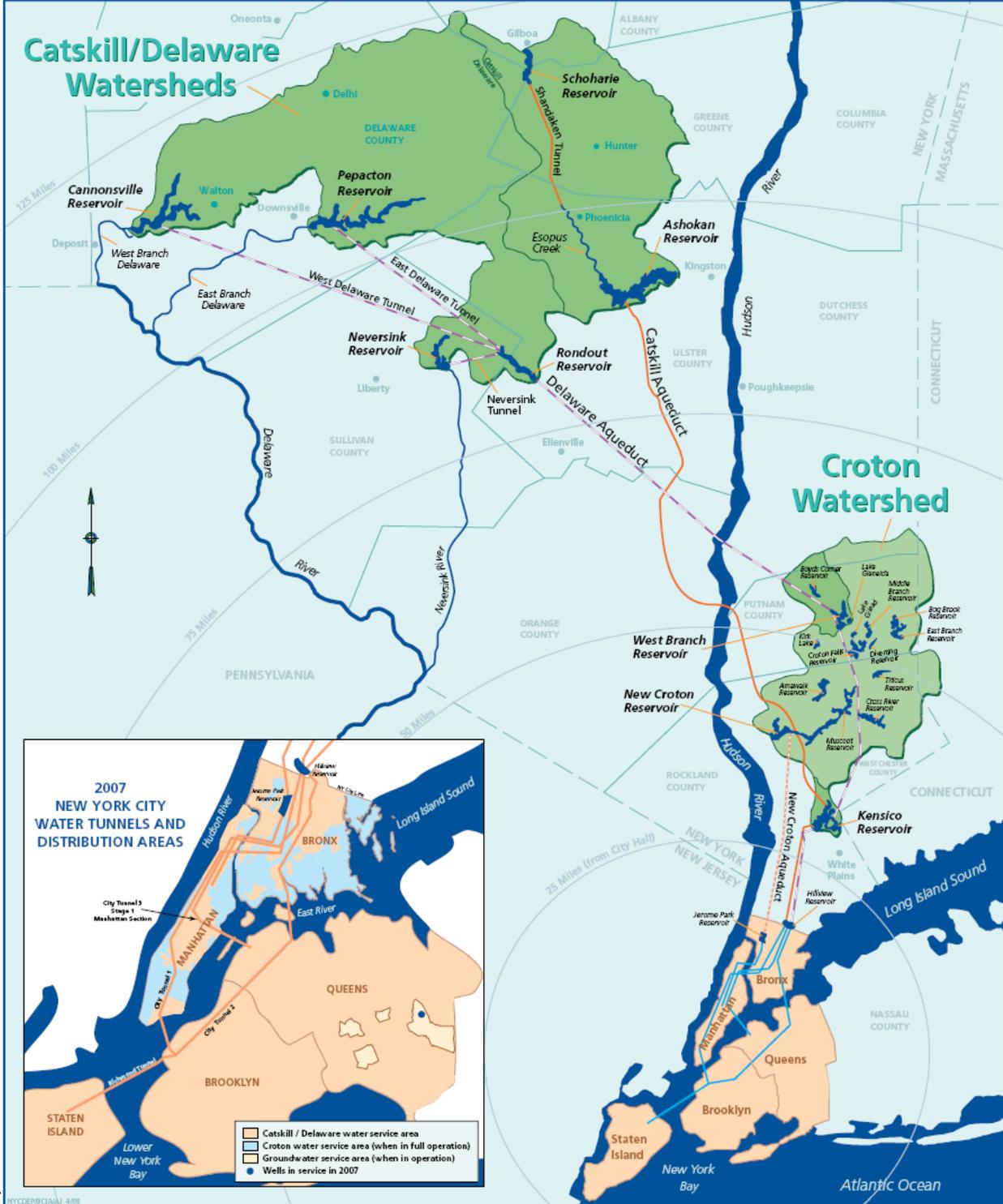
The Pepacton Development includes the Pepacton Reservoir, impounded by Downsville Dam. The Neversink Development includes the Neversink Reservoir, impounded by Neversink Dam.

As set forth in the attached map (below), the New York City surface water supply system consists of a network of 19 reservoirs, including the Pepacton and Neversink Reservoirs, and three controlled lakes in a 1,972 square-mile watershed. The City's water system provides approximately 1.2 billion gallons of safe drinking water to over eight million City residents and approximately one million residents of Westchester, Putnam, Ulster, and Orange Counties.

The City is the owner of the dams that would be utilized as part of the Project. A complete description of the proposed Project is set forth in Exhibit 1.



New York City's Water Supply System



7. ***All persons, citizens, associations of citizens, domestic corporations, municipalities, or states that have or intend to obtain any proprietary right to construct, operate, or maintain the project:***

As the Project proponent, all proprietary rights to construct, operate, and maintain the Project would reside with the City.

8. ***Every county in which any part of the project, and any federal facilities that would be used in the project, would be located in:***

- A. Pepacton Development

Delaware County, New York:

Hon. James E. Eisel, Sr.
Chairman, Board of Supervisors
County Office Building
111 Main Street
Delhi, NY 13753

- B. Neversink Development

Sullivan County, New York:

Hon. David P. Fanslau
County Manager
County Government Center
100 North Street
P.O. Box 5012
Monticello, NY 12701-5192

9. ***Every city, town, or similar local political subdivision in which any part of the project and any federal facilities that would be used by the project, would be located or that has a population of 5,000 or more people and is located within 15 miles of the dam or project:***

- A. Pepacton Development

Hon. Martin A. Donnelly
Town Supervisor
Town of Andes
115 Delaware Avenue
Andes, NY 13731

Hon. Tina B. Molé
Town Supervisor
Town of Bovina
Town Hall
Bovina Center, NY 13740

Hon. Robert A. Homovich
Town Supervisor
Town of Colchester
72 Tannery Road
P.O. Box 321
Downsville, NY 13755

Hon. Leonard Utter
Town Supervisor
Town of Middletown
42339 State Hwy 28
P.O. Box 577
Margaretville, NY 12455

Hon. Peter J. Bracci
Town Supervisor
Town of Delhi
5 Elm Street
Delhi, NY 13753

Hon. Robert A. Stanley
Town Supervisor
Town of Shandaken
P.O. Box 134
Allaben, NY 12480

Hon. Wayne Marshfield
Town Supervisor
Town of Hamden
6754 Basin Clove Road
Hamden, NY 13782

Hon. Stephen J. Walker
Town Supervisor
Town of Windham
371 State Route 296
Hensonville, NY 12439

Hon. Paul Ohsberg
Town Supervisor
Town of Hardenburgh
51 Rider Hollow Road
Arkville, NY 12406

Hon. John VanBenschoten
Mayor
Village of Margaretville
Gottfried Building, Main Street
PO Box 228
Margaretville, NY 12455

B. Neversink Development

Hon. Daniel Sturm
Town Supervisor
Town of Bethel
3454 Route 55
P.O. Box 300
White Lake, NY 12786

Hon. Steven Vegliante
Town Supervisor
Town of Fallsburg
19 Railroad Plaza
P.O. Box 2019
South Fallsburg, NY 12779

Hon. William Bruning
Town Supervisor
Town of Denning
P.O. Box 277
Claryville, NY 12725

Hon. Charles Barbuti
Town Supervisor
Town of Liberty
120 North Main Street
Liberty, NY 12754

Hon. Mark McCarthy
Town Supervisor
Town of Neversink
273 Main Street
P.O. Box 307
Grahamsville, NY 12740

Hon. Edward Weitmann
Town Supervisor
Town of Rockland
95 Main Street
P.O. Box 964
Livingstone Manor, NY 12758

Hon. Carl Chipman
Town Supervisor
Town of Rochester
50 Scenic Road
P.O. Box 65
Accord, NY 12404

Hon. Anthony P. Cellini
Town Supervisor
Town of Thompson
4052 Route 42
Monticello, NY 12701

Hon. Scott Carlsen
Town Supervisor
Town of Wawarsing
108 Canal Street
P.O. Box 671
Ellenville, NY 12428

Hon. Richard Winters
Mayor
Village of Liberty
167 North Main Street
Liberty, NY 12754

10. ***Every irrigation district, drainage district, or similar special purpose political subdivision in which any part of the project, and any federal facilities that would be used by the project, would be located:***

There are no irrigation districts, drainage districts, or other political subdivisions in the area where the Project would be located. The proposed Project will not use any Federal Facilities.

11. ***Every irrigation district, drainage district, or similar special purpose political subdivision that owns, operates, maintains, or uses any project facilities or any federal facilities that would be used in the project:***

No proposed Project facilities would be owned, operated, or maintained by any special purpose political subdivision. No federal facilities will be associated with the proposed Project area.

12. ***Every other political subdivision in the general area of the project that there is reason to believe would likely be interested in or affected by, the application:***

There are no other political subdivisions in the general area of the Project that there is reason to believe would likely be interested in, or affected by, this application.

13. All Indian tribes that may be affected by the project:

Vernon Isaac, Chief
Cayuga Indian Nation
P.O. Box 11
Versailles, NY 14168-0011

Robert Odawi Porter, President
Seneca Nation of Indians
PO Box 231
Salamanca, NY 14779

Mr. Raymond Halbritter
Oneida Indian Nation of New York
Genesee Street, Ames Plaza
Oneida, NY 13421

Mr. Lana Watt
Seneca Nation of Indians
Tribal Historic Preservation Officer
90 O:hi'yoh Way
Salamanca, NY 14779

Mr. Jesse Bergevin
Oneida Indian Nation
Historic Resource Specialist
2037 Dream Catcher Plaza
Oneida, NY 13421

Robert Chicks, President
Stockbridge-Munsee
Band of Mohican Indians
Stockbridge-Munsee Community
N8476 Moh-He-Con-Nuck Road
P.O. Box 70
Bowler, WI 54416

Leon Shenandoah, Sr., Head Chief
Onondaga Nation
RR 1, Box 270A
Nedrow, NY 13120

Ms. Sherry White
Stockbridge-Munsee Band of Mohican
Indians
Tribal Historic Preservation Officer
W13447 Camp 14 Road
P.O. Box 70
Bowler, WI 54416

Mr. Anthony Gonyea
Onondaga Nation
Historic Preservation Office
716 East Washington Street
Suite 104
Syracuse, NY 13210-1502

Bernie Parker, Chief
Tonawanda Band of Senecas
7027 Meadville Road
Basom, NY 14013

Norman Tarbell, Chief
St. Regis Band of Mohawk Indians
412 State Route 37
Akwesasne, NY 13655

Leo Henry, Chief
Tuscarora Nation
5616 Walmore Road
Lewiston, NY 14092

Mr. Arnold L. Printup
St. Regis Band of Mohawk Indians
Tribal Historic Preservation Officer
412 State Route 37
Akwesasne, NY 13655

14. *Exhibits attached to and made part of this application:*

- Exhibit 1 – Project Description
- Exhibit 2 – Description of Studies to be Conducted
- Exhibit 3 – Cost and Financing
- Exhibit 4 – Project Maps
- Exhibit 5 – Evidence of Municipal Status

EXHIBIT 1: PROJECT DESCRIPTION

For purposes of this application, the Project comprises proposed hydroelectric generating facilities at two of its existing dams and water supply reservoirs, as set forth in the table below. The dams, reservoirs, other real property, equipment, and related facilities that would comprise the units of development at each location are owned by the City. They are operated and maintained by DEP.

Development	Reservoir Name	Dam Name	River	Drainage Area
Pepacton	Pepacton	Downsville	East Branch Delaware River	372 mi ²
Neversink	Neversink	Neversink	Neversink River	92.6 mi ²

1.1 FLOW REGIME

1.1.1 Operation of the Reservoirs

The City's ability to divert water from the Pepacton and Neversink Reservoirs for drinking water purposes is governed by a Supreme Court Decree issued in 1954.⁵ The Decree specifies the maximum diversions allowed by the City from its Delaware River Basin Reservoirs (*i.e.*, Cannonsville, Pepacton, and Neversink) and establishes conditions and obligations related to the diversions. The Decree also established and authorized the Delaware River Master to administer the Decree. Pertinent hereto, the Delaware River Master directs the City to release water from the Delaware River Basin Reservoirs to maintain certain downstream flows. In addition to the Delaware River Master, the DRBC has authority to adopt and promote plans, policies, and projects related to conservation, control, use, and management and the water resources of the Delaware River Basin.

Within the confines of the Decree, the Decree Parties (the City, the States of Delaware, New Jersey, and New York, and the Commonwealth of Pennsylvania) meet periodically to establish detailed flow regimes for the Delaware River Basin Reservoirs. In May 2011, the Decree Parties adopted the Flexible Flow Management Program – Operations Support Tool (“FFMP-OST”) as the latest iteration of the flow regime. This regime remains in effect until May 31, 2012, but, with unanimous consent by the Decree Parties, it can be extended for an additional year (*i.e.*, until May 31, 2013).

The FFMP-OST requires conservation releases based on time of year and storage conditions at the Delaware River Basin Reservoirs. There are conservation release requirements for each Reservoir that decline as the amount of water stored in each Reservoir declines. Under the Tailwaters Habitat Protection and Discharge Program (“THPDMP”), the City must make

⁵ *New Jersey v. New York*, 347 U.S. 995 (1954).

conservation releases designed to protect the ecology in the tailwaters below the Delaware Basin Reservoirs and discharge mitigation releases designed to help improve the flood mitigation benefits that the Delaware Basin Reservoirs provide. In contrast, releases directed by the Delaware River Master can be made from any one or more Reservoirs, at the discretion of the City (and subject to the general parameters of the FFMP-OST).

The Project has been designed based on available flows and the physical constraints in the chambers in which the turbines would be located. Further, the Project has been designed pursuant to the controlling principle that releases for hydroelectric generation purposes must comply with directed releases ordered by the Delaware River Master under the terms of the Decree, discharge mitigation releases, and conservation releases in accordance with the FFMP-OST (and its successor flow regimes). At all times, the City's requirements to make directed and conservation releases will govern over considerations related to electricity production.

1.1.2 Energy Modeling

The City developed a simulation model of its water supply system called New York City Water Supply OASIS (a proprietary version of the publicly available OASIS model and herein further referred to as "OASIS") to simulate the water supply demands, conservation releases, directed releases, water level drawdowns, flood storage needs and other requirements set forth in the FFMP-OST. The rules of the FFMP-OST were incorporated in the model to simulate the estimated discharges from the two reservoirs using the historic inflow hydrology.

The benefits of OASIS modeling include the following:

- Conditions in the FFMP-OST account for the balancing of water supply demands, reservoir levels, directed releases, and conservation releases below the Downsview and Neversink Dams. Therefore, the model provides the best estimates of the expected discharges available for hydroelectric generation.
- OASIS estimates the seasonal variation in the water levels at the Pepacton and Neversink Reservoirs based on the conditions in the FFMP-OST. The OASIS model produces daily water level data for the full period of flow record, which extended from 1948 to 2004 (*i.e.*, 57 years).
- The OASIS model includes inputs for vendor supplied turbine-generator efficiency curves, tailwater rating curves, estimated headloss rating curves, and the hydraulic operating range of the turbine, which allow for calculations of daily generation output at each Development for the 57 year period of record. From these calculations, monthly and annual generation estimates were developed.

1.2 PEPACTON DEVELOPMENT

1.2.1 Existing Project Features

Dam

The Downsville Dam was placed into service in 1954 for the purpose of providing water supply to the City of New York. It is located on the East Branch of the Delaware River at approximately 42°04'29.49" North, 74°57'56.86" West in the Town of Colchester, Delaware County, New York. The dam is a zoned earth embankment structure with a concrete core wall and an embankment height of 204 feet. The elevation of the top of the dam is 1,304 feet above mean sea level ("msl"). Along the center portion of the dam, a core wall was constructed to elevation 1,130 feet above msl. The core wall slopes upward on the abutments to an elevation of 1,280 feet above msl on each side. The entire length of the core wall is founded on rock. The dam is approximately 2,450 feet long. The top width of the dam is approximately 45 feet and the bottom width is approximately 2,000 feet. [Figure 1.2-1](#) is an aerial image showing the main features of the Development area.

The spillway is located near the north end of the dam. It is an uncontrolled side channel spillway with an ogee crest. The channel discharges into a 40-foot-diameter concrete-lined tunnel that leads to a stilling basin. The crest of the weir is approximately 800 feet long and the tunnel has a length of approximately 1,530 feet. The spillway crest elevation is 1,280 feet above msl.

There is an above-ground waste spillway channel located directly above the 40-foot diameter spillway tunnel, also leading to the stilling basin. The purpose of the above-ground channel is to provide additional conveyance capacity to match the spillway capacity. When the spillway operates, water is first conveyed downstream through the tunnel. When the tunnel capacity is exceeded, water spills into the above-ground channel and is carried downstream to the stilling basin.

Water Supply Intake

Water supply withdrawals are obtained through a separate intake chamber located on the south shoreline of the impoundment roughly 3.5 miles upstream of the dam. Water withdrawn from the Pepacton Reservoir enters the East Delaware Tunnel and travels to the Rondout Reservoir. From the Rondout Reservoir, water is delivered to DEP's water supply distribution system via the Delaware Aqueduct.

Low-Level Release Works

Low-level release works are located in a chamber below a building adjacent to the northern end of the dam and the spillway. The release works convey flow to the East Branch of the Delaware River (which eventually merges with the West Branch to form the main stem of the Delaware River). A concrete-lined tunnel runs from the bottom of the Reservoir to the release works. From the release works, a second tunnel runs downstream back to the East Branch of the

Delaware River. Both tunnels were part of what was the diversion tunnel during construction (the diversion tunnel was plugged at the end of construction, and the release works essentially bypass the diversion tunnel plug). The total horizontal length of the tunnels and release works is approximately 520 feet.

The tunnel from the Reservoir to the release works is 8 feet in diameter and approximately 140 feet long. Before entering the chamber, the tunnel bifurcates into two 5-foot-diameter tunnels. Each tunnel connects to a short pipeline, a butterfly valve, a venturi, a cone valve, and a polyjet valve. Each line discharges into a circular stilling chamber that is maintained full of water due to the presence of a siphon at the end of the chamber. There is also a 20-inch conservation release line running from a tee in the north conduit into the north stilling chamber. This arrangement allows operation of one release line without affecting the adjacent release line, which could then be taken out of service and dewatered. The siphons located at the end of each stilling chamber join together to form a common 8-foot-diameter tunnel. This tunnel exists above the spring line of what was once the diversion tunnel and is presently the spillway tunnel.

The intake elevation of the diversion tunnel is approximately 1106 feet above msl.

1.2.2 Proposed Project Features

Background

Under the 2009 Preliminary Permit, DEP contacted several turbine vendors and provided data to allow them to appropriately size the equipment to match the available hydraulic capacity and the space limitations within the release works chamber. Based on the analysis performed to date, the City believes that the appropriate equipment would consist of one turbine capable of operating at flows up to 162 cubic feet per second (“cfs”). The 162 cfs station hydraulic capacity represents the maximum capacity that the City proposes for this Development. If the City ultimately proceeds with the Project, final turbine-generator bids will be solicited, and the City may modify the final turbine design to produce a maximum station capacity less than 162 cfs.

[Figure 1.2-2](#) is an aerial image showing the features associated with the Development.

Turbine Location

The hydroelectric equipment would be installed in the release works chamber and placed in the southerly 5-foot diameter pipe traversing the release works. The cone and polyjet valves connected to that pipe would be removed and replaced with a 1.7 MW turbine (size 800 mm/2.6 feet). It is expected that the turbine will be horizontal-shaft, with a Francis-type runner in a pressure case.

Installation of the turbine equipment requires the removal of a portion of a concrete shelf and ventilation pipe to allow the draft tube to fit in the available space. A 5-foot bypass pipe with cross bracing would be constructed around the turbine to maintain downstream flows when the

turbine is not operating. This bypass pipe would allow the City to maintain the capability to release the same amount of water that it currently releases.

Power and Interconnection Facilities

Power to the release works chamber and building is provided by NYSEG via an above-ground distribution circuit. The circuit enters the site south of the building and is metered at pole #186-29. A service line extends north across the site to a pole mounted transformer near the release works building. From that pole, the service continues underground approximately 80 feet to the motor control center (“MCC”) in the building. The MCC supplies all power to the release works chamber and building including heat, lights and motor-operated valves.

The City plans to interconnect the hydroelectric facility to the NYSEG distribution circuit via new conductors extending 80 feet from pole #186-29 to the release works building. As discussed in the main body of this application, the City recently learned that the NYSEG distribution circuit cannot handle the projected output from the hydroelectric facility. Therefore, the existing circuit, which is rated at 4.8 kV, must be upgraded to at least 12.5 kV. All associated equipment at both ends of the distribution circuit presumably would need to be upgraded as well. At this time, the City does not have any information from NYSEG on the length of the distribution circuit or its terminus point, other than that the terminus is at a substation in the Village of Downsville.

Within the Development, the City plans to run cables through existing access tubes and exposed polyvinyl chloride (“PVC”) coated rigid conduit from the release works to the at-grade main structure. From the main structure, the cables would run through an underground raceway/duct bank to a new 5 kV outdoor, metal-clad switchgear, to be located to the Northwest of the release works building. From the switchgear, a new underground service would be constructed to a new group operated aerial switch on a new pole located 80 feet southwest of the switchgear. The switchgear would contain vacuum circuit breakers, consisting of one 1200A main breaker, one 1200A generator breaker, and one 1200A station service breaker. The switchgear would also contain the protective relays and controls for generator synchronization with NYSEG’s distribution system.

Station service power would be provided via a new exterior pad mounted cast coil 75 kVA transformer. The transformer primary would be connected to the 1200A breaker in the switchgear via an underground raceway/duct bank, and the transformer secondary would be connected to the existing 120/208 V three-phase service in the release works building via another underground raceway/duct bank.

1.2.3 Project Operation

As noted above, the Pepacton Development would operate using conservation and directed releases. The flows through the turbine would be governed by the FFMP-OST and its successor regimes, as well as dispatch directives from the Delaware River Master.

[Table 1.2.3-1](#) provides the following information with respect to the Pepacton Development: (a) the estimated average annual generation; (b) the estimated average and design head; and (c) the estimated minimum and maximum turbine hydraulic capacity and (d) the estimated surface acreage of the Pepacton Reservoir at its spillway crest elevation.

Table 1.2.3-1: Generation-Related Details – Pepacton

Feature	Statistic
No. of Turbines/Runner Diameter	1 @ 800 mm (2.6 ft)
Turbine Type	Horizontal Francis
Rated Net Head	41.5 m (136 ft)
Average Net Head	38.6 m (126.6 ft)
Maximum Turbine Hydraulic Capacity	162 cfs
Minimum Turbine Hydraulic Capacity	65 cfs (40% of 162 cfs)
Maximum Electrical Capacity	1.70 MW
Rated Speed	600 rpm
Estimated Average Annual Generation (assuming 5% downtime due to scheduled or unscheduled outages)	9,235 MWh
Spillway Crest Elevation	1,280 feet above msl
Surface Area at Spillway Crest Elevation	5,560 acres

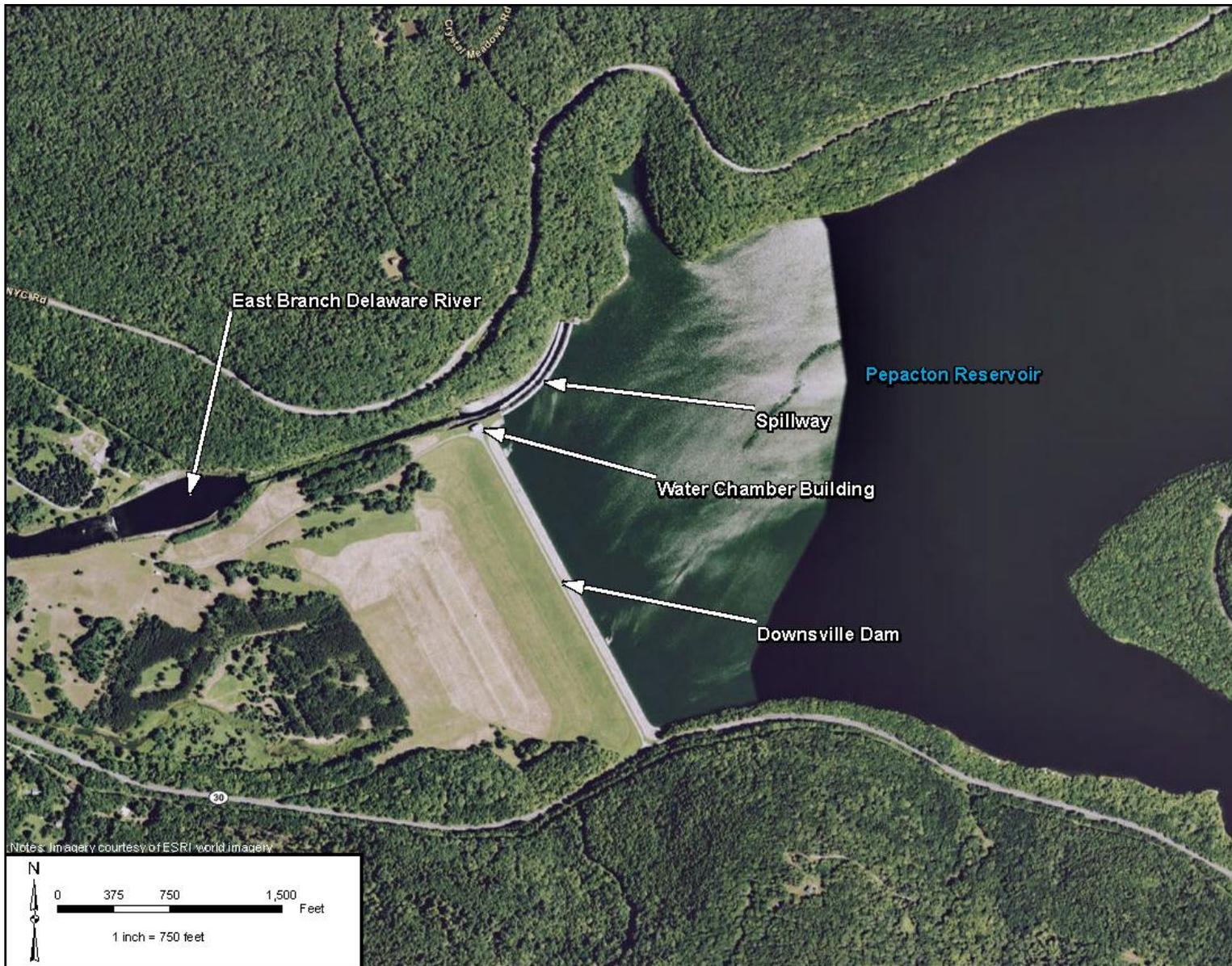


Figure 1.2-1: Pepacton Development Site Map



Figure 1.2-2: Pepacton Hydroelectric Development Project Features

1.3 NEVERSINK DEVELOPMENT

1.3.1 Existing Project Features

Dam and Tunnel

The Neversink Dam was placed into service in 1953 for the purpose of providing water supply to New York City. It is located on the Neversink River at approximately 41°49'20.92" N, 74°38'30.49" W in the Town of Neversink, Sullivan County, New York. The dam is an earth embankment with a concrete cutoff wall. The elevation of the top of the dam is 1,460 feet above msl. Along the center portion of the dam, a core wall was constructed to elevation 1,300 feet above msl. The core wall slopes upward on the abutments to an elevation of 1,440 feet above msl on each side. The entire length of the core wall is founded on rock. The dam is approximately 2,800 feet long. The top width of the dam is approximately 60 feet and the bottom width is approximately 1,800 feet. [Figure 1.3-1](#) is an aerial image showing the main features of the Development area.

The spillway is located near the northeast end of the dam. It is an uncontrolled side channel spillway with an ogee crest. The channel discharges into a 30-foot-diameter concrete-lined tunnel which leads to a stilling basin. The crest of the waste weir is approximately 600 feet long, and the tunnel is approximately 1,435 feet long. The spillway elevation is 1,440 feet above msl.

The concrete-lined tunnel is part of what was once the diversion tunnel used during construction. The tunnel passes adjacent to the northeast abutment of the dam and is surrounded entirely by rock. A short inclined tunnel traverses from the spillway channel to the diversion tunnel. After the inclined tunnel was constructed; the diversion tunnel was plugged with concrete just upstream of its intersection with the inclined tunnel. The stilling basin is located on the east side of the river channel downstream from the dam.

There is an above-ground spillway discharge waste channel above the concrete-lined tunnel, also leading to the stilling basin. When the spillway operates, water is first conveyed downstream through the tunnel. When the tunnel capacity is exceeded, the excess discharge spills into the above-ground channel and is carried downstream to the stilling basin. The above-ground channel is spanned by a steel arch bridge carrying State Route 55.

Water Supply Intake

Water supply withdrawals and conservation and directed releases are all made via a common intake structure located to the north of the spillway weir. The intake structure contains multi-level intake openings, a surface gatehouse structure, and control works. Within the intake structure, water can be directed either through the Neversink Tunnel for water supply purposes or through low-level release works for downstream releases. Water is conveyed to the intake structure through a long, deep intake channel.

Release Water Chamber

Releases are made to the Neversink River downstream of the dam via three pipelines, which are controlled by three regulating valves located in an underground gate chamber adjacent to the intake structure. Each release line is equipped with a venturi meter, a cone valve, and a needle valve for flow regulation. Two of the pipelines are 36 inches in diameter, and the third, which is located between the other two, is 12 inches in diameter. The smaller pipeline is referred to as the conservation line. The underground gate chamber is approximately 25 feet in diameter. Each release line discharges into a circular stilling chamber that is approximately eight feet in diameter and 45 feet long. At the end of each chamber there is an arch-shaped gooseneck conduit. The conduits join together in a larger common tunnel. This arrangement allows operation of one release line without affecting the other release lines, thereby allowing individual lines to be taken out of service and dewatered. The tunnel flows to the concrete-lined tunnel described above.

1.3.1 Proposed Project Features

Background

The City contacted several turbine vendors and provided data to allow them to appropriately size the equipment to match the available hydraulic capacity and the space limitations within the release water chamber. Based on the analysis performed to date, the City believes that the appropriate equipment would consist of one turbine capable of operating at flows up to 100 cfs. The 100 cfs station hydraulic capacity represents the maximum capacity that the City proposes for this Development. If the City ultimately proceeds with the Project, final turbine-generator bids will be solicited, and the City may modify the final turbine design to produce a maximum station capacity less than 100 cfs.

[Figure 1.3-2](#) is an aerial image showing the features associated with the Development.

Turbine Location

The hydroelectric equipment would be installed within the release water chamber and placed in the northerly 36-inch release line. The valves that comprise part of that release line would be removed and replaced with a 0.9 MW turbine (size 600 mm/1.9 feet). It is expected that the turbine will be horizontal-shaft, with a Francis-type runner in a pressure case.

A bypass pipe with an associated steel support frame would be constructed around the turbine to maintain downstream flows when the turbine is not operating. This bypass pipe would allow the City to maintain the capability to release the same amount of water that it currently releases through the existing release pipe. However, the overall release capacity would be reduced by the capacity of the conservation pipe as it must be removed to create space for the hydropower equipment associated with the Project.⁶ Conservation releases formerly provided through the conservation pipe would be provided either through the turbine or the other release line.

⁶ The conservation flow pipe has a capacity of 37 cfs when the reservoir elevation is at the spillway crest.

Power and Interconnection Facilities

Power to the intake structure is provided by NYSEG via an above-ground distribution circuit. The distribution circuit runs along State Route 55 in the area of the Development. The electric service for the intake structure interconnects at pole #1024-40-1 and runs cross-country approximately 760 feet to the electrical equipment located adjacent to the intake structure. Recently, DEP upgraded the electrical service via new underground cables in conduits and a 150 kVA pad mounted, 480 V secondary transformer located near to the intake structure. As part of that project, DEP installed an extra underground conduit from the transformer to the interconnection point.

The City contemplates using this spare conduit for the conductors used to interconnect the hydroelectric facility with NYSEG's distribution circuit. As discussed in the main body of this application, and as at the Pepacton Development, the City recently learned that the NYSEG distribution circuit cannot handle the projected output from the hydroelectric facility. Therefore, the existing circuit, which is rated at 4.8 kV, must be upgraded to at least 12.5 kV. All associated equipment at both ends of the distribution circuit presumably will need to be upgraded as well. At this time, the City does not have any information from NYSEG on the length of the distribution circuit or its terminus points. Based on information gleaned from public sources, it appears that the interconnection is at a point midway between two substations. It also appears that the substations are located a significant distance from the interconnection point.

Within the Development, the City plans to run cables through the spare conduit to the point of interconnection. On the Development site, the cables would terminate at a new group operated switch that would serve as a main service disconnect. From that point, cables would run underground to a new 5 kV outdoor, metal-clad switchgear. The switchgear would contain vacuum circuit breakers, consisting of one 1200 A main breaker, one 1200A generator breaker, and one 1200A station service breaker. The switchgear would also contain the protective relays and controls for generator interconnection with NYSEG's distribution system. Some reconfiguration of the existing cables and equipment may be necessary. From the switchgear, cables would run through an underground raceway/duct bank to the intake structure. Within the structure, the cables would run through exposed PVC-coated rigid conduit routed down the existing access tube to the release water chamber.

Station service power would be provided via the existing exterior pad mounted 150 kVA transformer. The transformer primary would be connected to the 1200A breaker in the switchgear via an underground raceway/duct bank, and the existing transformer secondary would remain connected to the existing 480 V switchboard in the intake structure.

1.3.2 Project Operation

As noted above, the Neversink Development would operate using conservation and directed releases. The flows through the turbine would be governed by the FFMP-OST and its successor regimes, as well as dispatch directives from the Delaware River Master.

[Table 1.3.2-1](#) provides the following information with respect to the Neversink Development: (a) the estimated average annual generation; (b) the estimated average and design head; and (c) the estimated minimum and maximum hydraulic capacity and (d) the estimated surface acres of Neversink Reservoir at its spillway crest elevation.

Table 1.3.2-1: Generation-Related Details – Neversink

Feature	Statistic
No. of Turbines/Runner Diameter	1 @ 600 mm (1.9 ft)
Turbine Type	Horizontal Francis
Rated Net Head	38.1 m (125 ft)
Average Net Head	39.0 m (119.4 ft)
Maximum Turbine Hydraulic Capacity	100 cfs
Minimum Turbine Hydraulic Capacity	50 cfs (50% of 100 cfs)
Maximum Electrical Capacity	0.9 MW
Rated Speed	900 rpm
Estimated Average Annual Generation (assuming 5% downtime due to scheduled or unscheduled outages)	5,457 MWh
Spillway Crest Elevation	1,440 ft above msl
Surface Area at Spillway Crest Elevation	1,478 acres



Figure 1.3-1: Neversink Development Site Map

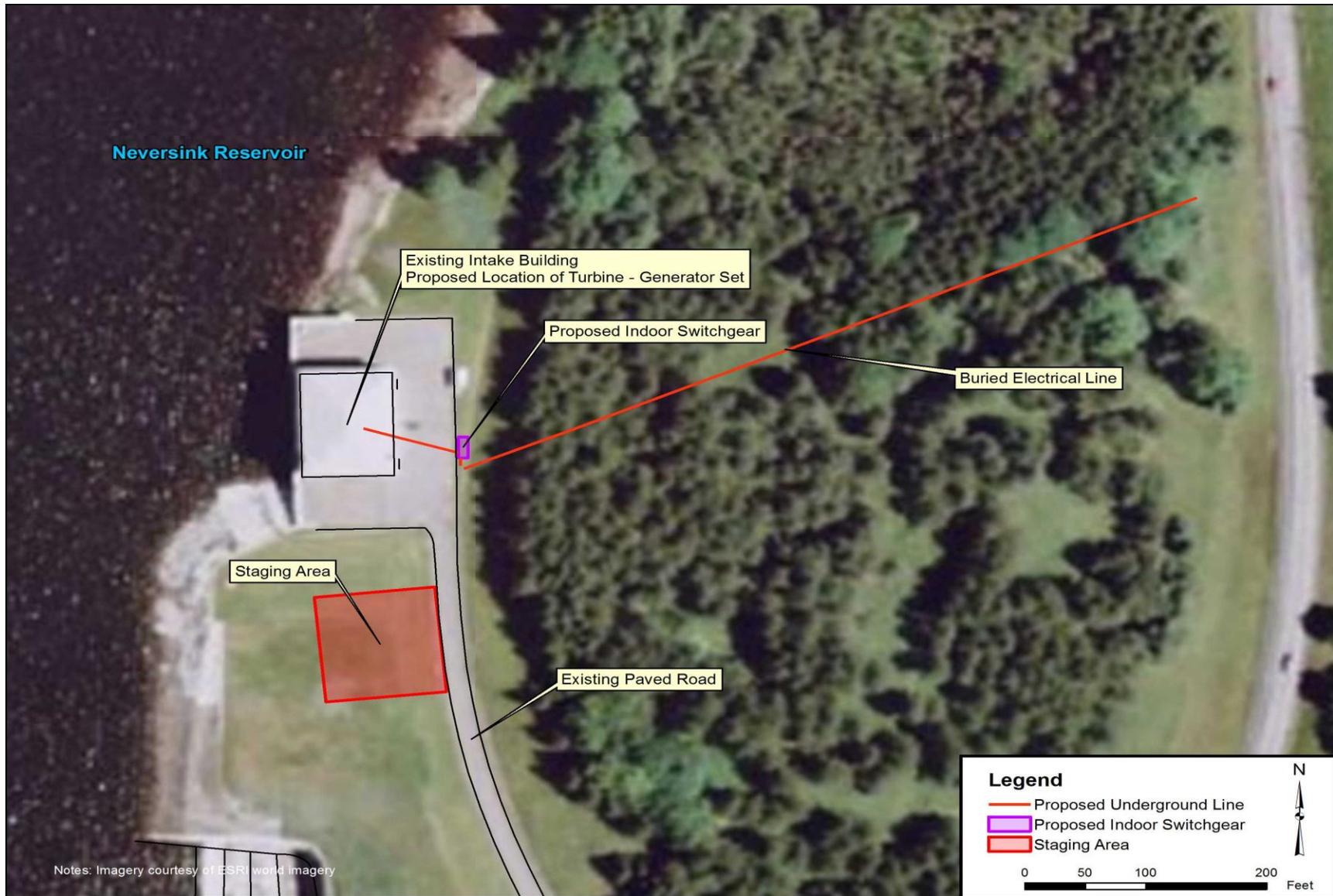


Figure 1.3-2: Neversink Hydroelectric Development Features

1.4 LANDS OF THE UNITED STATES

There are no lands of the United States within the proposed units of development for either the Pepacton Development or the Neversink Development.

There are no known areas within or in the vicinity of the proposed Project boundaries that are included, or have been designated for study for inclusion, in the National Wild and Scenic Rivers System.

There are no known areas within the proposed Project boundaries that are known to be subject to the provisions of the Wilderness Act or that have been designated as wilderness areas, recommended for designation as wilderness area, or designated as wilderness study.

1.5 PUBLIC INTEREST

If approved and constructed, the Pepacton and Neversink Developments would provide enhanced value to the region's water resources. The output from the hydroelectric facilities would have a depressive effect on energy prices in New York, which would inure to the benefit of all electric ratepayers.⁷

Further, the Project is consistent with federal, State and City initiatives to expand reliance on renewable sources of electricity and reduce air emissions associated with electricity generation. For example, the Project could supplant generation from coal- and oil-fired generating facilities, thereby eliminating tons of SO₂, NO_x, and CO₂ emissions.

The City's consultants have also determined that the Project would produce modest increases in economic output in Delaware and Sullivan Counties, primarily during the construction period.

⁷ The City's socioeconomic consultants have estimated the wholesale electric price benefits from the Project as a whole (*i.e.*, including the Cannonsville Development) to be approximately \$13.6 million per year.

EXHIBIT 2 – DESCRIPTION OF PROJECT STUDIES

As documented in the City’s progress reports related to the 2009 Preliminary Permit, submitted to the Commission during the past three years, the City has consulted with the resource agencies regarding the type and scope of studies that would be required to support license or exemption applications for the Project. The City also conducted public information meetings to obtain input from other governmental agencies, non-governmental organizations, and interested individuals regarding the nature and scope of the studies that would be needed to support the license/exemption applications for the Project.

Based on its own analysis and the input received from these sources, the City conducted and completed the following studies:⁸

- Impact of Hydropower Development Construction Activities on Wildlife and Botanical Resources, including Wetlands, Riparian, and Littoral Habitat, and Rare, Threatened and Endangered Species.
- Fish Entrainment Report, Literature Based Characterization of Resident Fish Entrainment and Mortality.
- Impact of Construction Related Activities on Erosion
- Socioeconomic Study Report
- Phase IA Archeological Literature Review and Sensitivity Assessment
- Impact of Construction Related Activities and New Construction on Aesthetics

2.1. PROPOSED STUDIES

Most of the potential impacts associated with the Pepacton and Neversink Developments were evaluated in the studies described above. The only environmental impacts that were not studied pertain to the apparent need to reconstruct the NYSEG distribution circuits serving the two Developments. Although the impacts associated with reconstructing those circuits are expected to be minimal to non-existent, because the construction is directly related to the Project, the impacts must nevertheless be examined.

Specifically, the City will supplement its “Impact of Hydropower Development Construction Activities on Wildlife and Botanical Resources, including Wetlands, Riparian, and Littoral Habitat, and Rare, Threatened and Endangered Species” Study to identify potential resources, habitats, and species in the existing NYSEG rights-of-way that may be impacted by the construction of the new distribution facilities.

The City will also supplement its “Impact of Construction Related Activities on Erosion” Study to determine whether the installation of new poles would cause any erosion concerns and to identify potential mitigation measures to minimize and control any potential erosion.

⁸ All of the following studies were included in the draft applications filed with the Commission on September 20, 2011.

It is the City's understanding that while the new distribution poles would have somewhat larger cross-arms and insulators, their heights would remain approximately the same as the existing poles. Further, the new poles and wires would be constructed in the existing rights-of-way and would generally have the same overall appearance as the existing poles and wires. Accordingly, the City does not intend at this time to supplement its "Impact of Construction Related Activities and New Construction on Aesthetics" Study.

Given the anticipated small scale ground disturbances associated with the reconstruction of the distribution circuits, and the fact that the right-of-ways have already been cleared and regraded, it is questionable whether there is any need to study the potential archeological and cultural resource impacts. Nevertheless, the City will consult with its archeological consultant to determine whether the "Phase IA Archeological Literature Review and Sensitivity Assessment" should be supplemented to encompass the rights-of-way. If the City and its consultant determine that such an assessment is needed, the City will proceed with such a study in the same manner that the prior assessment was performed.

Additionally, the City intends to conduct a further analysis of the extent of the upgrades required and their associated costs. The City will use this information to refine the economic analysis and further assess the feasibility of each Development. The City will also supplement its electrical design for each Development to reflect the interconnection to the higher voltage NYSEG distribution circuits. The interconnection and other electrical equipment will be modified accordingly, if necessary to accommodate the higher voltage. In addition, layouts of the construction area and a construction plan will be developed for this additional work.

2.2. ROADS

Pepacton Development:

Access to the proposed Pepacton Development would be from the existing access road that traverses the top of the dam from State Route 30.

Neversink Development:

Access to the proposed Neversink Development would be from the existing access road from State Route 55.

2.3 NEW DAM CONSTRUCTION

The proposed Project would utilize the existing dams at each Development site, with no new dam construction at either Development site. Because no new dam construction is proposed, the City requests a waiver of the requirements of Section 4.81(c)(2) of the Commission's regulations.

2.4 PROPOSED WORK SCHEDULE

The City will complete the incremental analyses described in Section 2.1, above, during the term of the new, successive preliminary permit. Once all requisite analyses are completed and evaluated, and the feasibility assessment of the Project is updated and reviewed by the City, the City will determine whether it will proceed with the submission of its license/exemption applications for these Developments. Throughout the term of the new preliminary permit, the City will continue to apprise Commission staff of the status of its efforts and its plans for moving forward, as it did during the term of the 2009 Preliminary Permit.

EXHIBIT 3 – COST AND FINANCING

Cost of Planning, Studies and License Application Preparation

The potential incremental costs the City will incur to complete the studies and analyses described in Exhibit 2 are unknown at this time. As explained above, the information regarding the electrical interconnections was only recently discovered and is very sparse; therefore, the City does not yet have sufficient information from NYSEG to identify the scope of the study areas or the magnitude of the studies that may be needed. Once the City is able to provide an estimate of the potential incremental costs it expects to incur, it will so advise the Commission.

To date, the City has spent approximately \$708,000 per Development to prepare studies to support its license/exemption applications and engage in the other activities described in its status reports to the Commission.

Expected Sources of Finances

The City will provide the necessary financing to conduct the activities described in Exhibit 2.

Proposed Market for the Generated Power

The NYISO operates robust electricity markets in the New York Control Area. The City anticipates that it would enter into an agreement with an unaffiliated third party regarding the disposition of the energy and ancillary services produced by the Project. Under any arrangement, the power produced from the Project would be utilized in a manner that would benefit the City and its constituents.

EXHIBIT 4 – PROJECT MAPS

The following maps and preliminary drawings are provided for the proposed Project.

Figure No.	Development	Title
4-1	Pepacton	USGS Quadrangle Map
4-2	Pepacton	Project Boundary Map
4-3	Pepacton	Proposed Site Plan
4-4	Neversink	USGS Quadrangle Map
4-5	Neversink	Project Boundary Map
4-6	Neversink	Proposed Site Plan

The drawings of the valve chambers at each Development, which would include the layout of the proposed hydroelectric facilities, have been determined to constitute Critical Energy Infrastructure Information. Those drawings were filed with the Commission on September 20, 2011 as confidential documents (*i.e.*, subject to Critical Energy Infrastructure Information protection) as part of the draft exemption from licensing applications for the two Developments. The information in those drawings has not changed, and the City respectfully refers the Commission to those drawings (which have been incorporated into this application) for details regarding the proposed generating facilities.

EXHIBIT 5 – EVIDENCE OF MUNICIPAL STATUS

The City is a municipality and claims preference under Section 7(a) of the Federal Power Act and 18 C.F.R. § 4.37. Pursuant to 18 C.F.R. § 4.81(a)(4), a municipal applicant must provide evidence that the municipality is competent under state and local laws to engage in the business of development, transmitting, utilizing, or distributing power.

The City is a municipality existing under the laws of the State of New York, the New York City Charter and the Administrative Code of the City of New York. Section 24-364 of the Administrative Code provides that the Department of Environmental Protection may utilize such water that it now owns or may acquire for the purpose of generating electric current for use by the municipality. A copy of the statute is attached.

Pursuant to this authority, the City owns the Neversink hydroelectric facility, a 25 MW facility located in Grahamsville, New York, and the Grahamsville hydroelectric facility, a 18 MW hydroelectric facility also located in Grahamsville, New York. Because the City has built, maintained and operated the water supply system for decades and owns two existing hydroelectric facilities in the Delaware River Basin, the City is in a unique position to develop more hydroelectric facilities on its water supply system while ensuring the adequacy and safety of the storage and delivery of high quality drinking water to its citizens and other New York residents and full compliance with the 1954 Supreme Court Decree, DRBC rules and regulations, U.S. Environmental Protection Agency Filtration Avoidance Determinations, water quality protection requirements, flood control protocols, and conservation and directed release obligations and directives.

ATTESTATION

Pursuant to 18 C.F.R. § 4.32(a)(4)(i)

This PRELIMINARY PERMIT APPLICATION is executed in

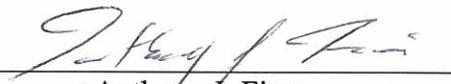
State of New York

County of Queens

By: Anthony J. Fiore
Chief of Staff - Operations
New York City Department of Environmental Protection
59-17 Junction Boulevard
Flushing, NY 11373
718-595-6529
afiore@dep.nyc.gov

I, Anthony J. Fiore, being duly sworn, depose and say that the contents of this application are true to the best of my knowledge, information or belief. The undersigned applicant has signed this application this 1st day of March, 2012. Pursuant to 18 C.F.R. § 4.32(a)(4)(i), this application will be filed by Kevin M. Lang, Esq. – a person authorized herein to act as agent for the applicant in this application.

CITY OF NEW YORK, Applicant, acting through the
New York City Department of Environmental Protection

By: 
Anthony J. Fiore

Subscribed and sworn to before me,
a Notary Public of the State of New
York, this ~~1st~~^{February} day of ~~March~~, 2012. *MSS*


Notary Public

MELISSA S. SIEGEL
Notary Public, State of New York
No. 02SI4832255
Qualified in Queens County
Commission Expires July 31, 2013