



Date: September 29, 2015

To: THE TRUSTEES

From: THE PRESIDENT and CHIEF EXECUTIVE OFFICER

Subject: **Transmission Life Extension and Modernization Program –
PV-20 Submarine Cable Replacement –
Capital Expenditure Authorization Request and Contract Award**

SUMMARY

The Trustees are requested to authorize Capital Expenditures in the amount of \$68,726,100 for all works associated with the replacement of the existing seven (7) submarine cables and associated terminal structures of the PV-20 interconnecting line between the Authority's ("NYPA") Plattsburgh Substation and the Vermont Electric Power Company's ("VELCO") Sand Bar Substation. The Trustees are also requested to authorize O&M Expenditures in the amount of \$7,139,200 for the removal and disposal of the existing cables and terminal structures, and approve the award of multi-year turnkey services contracts in the amount of \$46,708,461 to LS Cable & System of South Korea, to design, fabricate, test, deliver and install these cables and new terminal structures, and in the amount of \$2,651,650 to Miller Environmental Group of Calverton, NY, for the removal and disposal of the existing submarine cables and accessories.

Additionally, the Trustees are also requested to authorize the acquisition, in fee, by purchase or eminent domain of approximately 1.6 acres of real property to accommodate a new transition station and appurtenances and a temporary easement of approximately 0.1 acre of real property for construction in the immediate vicinity of the Authority's existing transition station property in the Town of Plattsburgh, County of Clinton, as generally shown on the attached Exhibit "A," for a sum not to exceed \$25,000. These proposed acquisitions are reasonably necessary for the improvement of the Authority's PV-20 Transmission Facilities.

The Capital Expenditures amount includes \$2,100,000 for Preliminary Engineering/Licensing that was previously approved by the President and Chief Executive Officer.

BACKGROUND

In accordance with the Authority's Expenditure Authorization Procedures, Capital Expenditures in excess of \$3 million require the Trustees' approval.

Section 2879 of the Public Authorities Law and the Authority's Guidelines for Procurement Contracts require the Trustees' approval for procurement contracts involving services to be rendered for a period in excess of one year. Also, in accordance with the Authority's Expenditure Authorization Procedures, the award of non-personal services or equipment purchase contracts exceeding \$3 million require Trustee approval.

Pursuant to the provisions of Article 5, Title 1 of the Public Authorities Law, the Authority is authorized, subject to Trustee approval, to acquire real property by purchase or eminent domain.

The existing PV-20 115kV circuit connects NYPA's Plattsburgh Substation in Beekmantown, NY to VELCO's Sand Bar Substation in Milton, VT. The circuit is comprised of a combination of 115kV overhead line sections, 115kV fluid-filled submarine cable section, and 230kV rated nitrogen-filled high pressure pipe-type cable section.

Once PV-20 reaches the Cumberland Head Transition Station, it transitions to oil-filled submarine cables that are laid on the Lake Champlain bottom for approximately 1.7 miles where it emerges at the Grand Isle terminal in Vermont. The submarine cable portion consists of four (1 spare) original 500 kcmil cables, installed in 1958, and three additional 1000 kcmil cables, installed in 1970. One of the original 500 kcmil cables failed in 1970 and was not replaced. The cables are an oil-filled design with gravity fed oil reservoirs at each termination. The terminations at either end of the cable are virtually identical. This project will replace and dispose the existing seven (7) cables with four (4), single-core 3553 kcmil XLPE submarine cables (3 phase conductors and 1 spare), to be installed at 230kV-rated insulation and operated at 115kV, including the replacement of existing terminal structures with new terminal structures.

Due to its location, the existing Transition Station is insufficient to accommodate installation of the replacement submarine cables while keeping the existing facilities in service. A new transition station will be built, offset to the north from the existing transmission line, on a 1.6-acre parcel westerly of the existing transition station. This location will provide better access and utility for construction and maintenance and will facilitate any future upgrade to the existing overhead transmission line. Likewise, a 0.1-acre temporary construction easement is required to facilitate placement of the submarine cables within the Authority's existing property prior to removing the existing cables.

As part of the Transmission Life Extension and Modernization ("T-LEM") Program, Quanta Technology assessed PV-20 upgrade options. Two primary objectives were considered: 1) upgrade options for future consideration if a circuit upgrade becomes necessary due to load increases; and 2) assessment of the condition of the submarine cable portion of the PV-20 circuit with recommendations for addressing any condition-based risk.

The assessment of the PV-20 circuit concluded that no immediate upgrade is required for load-serving capability. However, the submarine portion of the circuit is regarded as being at risk for disruption of continued service. This conclusion is due to the operating history of the submarine cable which includes thermal runaways, indicating overheating for some time of its operation. Further, the cables are approaching the end of their design life and there is no viable replacement cable available in case of a cable failure. The fluid pressurization systems which are critical to the operational well-being of the cable insulation are obsolete. If a major defect occurred at any of the reservoirs, the systems could not be replaced without extraordinary expense and long lead time due to the custom manufacture that would be required.

A memorandum of Understanding between NYPA and VELCO was entered into on September 18, 2013. NYPA and VELCO agreed to pursue the project as described above. The project costs will be split on a 50%-50% basis.

DISCUSSION

In response to an advertisement, issued on February 18, 2015, in the New York State *Contract Reporter* for the installation of the new submarine cables, Inquiry Q15-5813RH, and for the removal of the existing cables, Inquiry Q15-5815RH, two proposals were received for the removal of the existing cables on April 30, 2015, and three proposals were received for the installation of the new cables on May 14, 2015.

All proposals were evaluated by a committee of Authority and VELCO Engineering, Environmental, Transmission, Quality Assurance, Asset Management, Project Management and Procurement staff.

The proposals were evaluated based on:

- Compliance with commercial, technical and quality assurance requirements
- Execution plan
- Price
- Engineering and Quality Assurance support and travel associated with overseeing the design, fabrication, and testing.

As part of the bid evaluation process, written technical clarifications were required of all bidders. The technically qualified bidders were asked to provide written clarifications of their manufacturing and design capabilities and understanding of the bidding documents.

LS Cable & System and Miller Environmental Group were determined to have submitted the lowest-price, evaluated bids and demonstrated adequate understanding of the project and the ability to successfully complete the project as planned.

The Project work will be performed over a four-year period with design taking place in 2015. Manufacturing, shipment, installation, testing and commissioning of the new cables will commence in 2016 and will be completed in 2017. The removal of the existing submarine cables will commence in 2017 and will be completed in 2018.

The Capital Expenditure Authorization Request is comprised of the following:

Preliminary Engineering/Licensing (previously authorized)	\$ 2,100,000
Engineering and Design	\$ 3,749,000
Procurement	\$ 10,597,200
Construction/Installation	\$ 45,330,600
Authority Indirect and Direct Expenses	<u>\$ 7,030,200</u>
TOTAL	<u>\$ 68,726,100</u>
Agencies/Utilities Reimbursement (VELCO Share)	\$ 29,219,000

The O&M Expenditure Authorization Request is comprised of the following:

Payment and Performance Bond	\$ 41,600
Mobilization & Demobilization	\$ 358,000
Removal of Cables	\$ 2,055,000
Divers and Excavation	\$ 2,500,000
Oil Disposal	\$ 7,000
Cable Disposal	\$ 147,000
All Other Disposals	\$ 53,000
Removal of Old Terminal Stations	<u>\$ 1,977,600</u>
	TOTAL <u>\$ 7,139,200</u>
Agencies/Utilities Reimbursement (VELCO Share)	\$ 3,569,600

FISCAL INFORMATION

Payments associated with this Project will be made from the Authority's Capital and O&M Funds.

RECOMMENDATION

The Senior Vice President and Chief Engineer – Operations Support Services, the Vice President – Project Management, the Vice President – Transmission, the Vice President – Procurement, and the Project Manager recommend that the Trustees authorize Capital Expenditures in the amount of \$68,726,100 and O&M Expenditures in the amount of \$7,139,200; approve the awards multi-year contracts to LS Cable & System in the amount of \$46,708,461 and Miller Environmental Group in the amount of \$2,651,650; and approve the acquisition of the real estate rights for the Authority's PV-20 Submarine Cable Replacement Project as set forth above.

For the reasons stated, I recommend the approval of the above-requested action by adoption of the resolution below.

Gil C. Quiniones
President and Chief Executive Officer

RESOLUTION

RESOLVED, That pursuant to the Authority's Expenditure Authorization Procedures, Capital Expenditures in the amount of \$68,726,100 and O&M Expenditures in the amount of \$7,139,200, are hereby authorized for the PV-20 Submarine Cable Replacement, in accordance with, and as recommended in, the foregoing memorandum of the President and Chief Executive Officer;

<u>Capital</u>	<u>Expenditure Authorization</u>
PV-20 Submarine Cable Replacement	<u>\$68,726,100</u>
<u>O&M</u>	
Disposal of Existing Terminal Structure and Cables	<u>\$7,139,200</u>

AND BE IT FURTHER RESOLVED, That pursuant to the Guidelines for Procurement Contracts adopted by the Authority and the Authority's Expenditure Authorization Procedures, approval is hereby granted to award multi-year contracts to LS Cable & System, of South Korea, in the amount of \$46,708,461 for the design, fabrication, testing, delivery, installation of the PV-20 cables and new terminal structures, and to Miller Environmental Group, of Calverton, NY, in the amount of \$ 2,651,650 for the removal of the existing submarine cables;

<u>Contractors</u>	<u>Contract Approval</u>
LS Cable & System (South Korea) Q15-5813RH	<u>\$ 46,708,461</u>
Miller Environmental Group (Calverton, NY) Q15-5815RH	<u>\$ 2,651,650</u>

AND IT BE FURTHER RESOLVED, That pursuant to the provisions of Article 5, Title 1 of the Public Authorities Law, the Authority hereby finds it necessary to acquire by purchase or eminent domain the real properties shown and described on the map attached hereto as Exhibit “A” for a sum not to exceed \$25,000 and hereby finds and determines that such real property is required for a public use and is reasonably necessary for the PV-20 Submarine Cable Replacement Project;

AND IT BE FURTHER RESOLVED, That the Vice President – Procurement and the Director of Site Purchasing, Materials Management and Real Estate are hereby authorized to execute any and all other agreements, papers or instruments on behalf of the Authority that may be deemed necessary or desirable to acquire the real property identified above by purchase or by eminent domain, subject to the approval by the Executive Vice President and General Counsel;

AND BE IT FURTHER RESOLVED, That the Chairman, the President and Chief Executive Officer, the Chief Operating Officer and all other officers of the Authority are, and each of them hereby is, authorized on behalf of the Authority to do any and all things and take any and all actions and execute and deliver any and all agreements, certificates and other documents to effectuate the foregoing resolution, subject to the approval of the form thereof by the Executive Vice President and General Counsel.

**New York Power Authority
 St. Lawrence-FDR
 Power Project
 PV-20 Transmission Line
 Proposed Acquisitions
 of Real Property Facilitating
 Transition Station Relocation
 Town of Plattsburgh
 Clinton County**

EXHIBIT A

Legend

- Towers (All)
- Other Roads
- NYPA Owned Lands
- Easements to NYPA
- Tax Maps
- Clinton County Highway ROW
- Proposed Acquisitions



1 inch = 200 feet

