2019-2022 Approved Budget and Financial Plan

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In compliance with 2 NYCRR Part 203

NEW YORK STATE OF OPPORTUNITY™ | NY Power Authority

Background and Mission of the Power Authority of the State of New York

The mission of the Power Authority of the State of New York ("NYPA" or the "Authority") is to power the economic growth and competitiveness of New York State by providing customers with low-cost, clean, reliable power and the innovative energy infrastructure and services they value. The Authority's financial performance goal is to maintain a strong financial position in order to have the resources necessary to achieve its mission.

The Authority generates, transmits, purchases and sells electric power and energy as authorized by law. The Authority's customers include municipal and rural electric cooperatives located throughout New York State, investor-owned utilities, high load factor industries, commercial/industrial and not-for-profit businesses, and various public corporations located in Southeastern New York within the metropolitan area of New York City ("SENY governmental customers") and certain neighboring states.

To provide electric service, the Authority owns and operates five major generating facilities, eleven small gas-fired electric generating facilities, and four small hydroelectric facilities in addition to a number of transmission lines, including major 765-kV and 345-kV transmission facilities. The Authority's five major generating facilities consist of two large hydroelectric facilities ("Niagara" and "St. Lawrence-FDR"), a large pumped-storage hydroelectric facility ("Blenheim-Gilboa"), the combined cycle electric generating plant located in Queens, New York (the "500-MW plant") and the Richard M. Flynn combined cycle plant located on Long Island ("Flynn").

To maintain its position as a low cost provider of power in a changing environment, the Authority has undertaken and continues to carry out a multifaceted program, including: (a) the upgrade and relicensing of the Niagara, St. Lawrence-FDR and Blenheim-Gilboa projects; (b) long-term supplemental electricity supply agreements with the SENY governmental customers; (c) construction and operation of the 500-MW plant combined-cycle electric generating plant located at the Authority's Poletti plant site; (d) a long-term electricity supply contract with Astoria Generating LLC for the purchase of the output of a 550-MW power plant in Astoria, Queens ("Astoria Energy II"); (e) a firm transmission capacity purchase agreement with Hudson Transmission Partners, LLC ("HTP") for a portion of the output of the 660 MW, seven mile, underground and underwater transmission line connecting into the PJM ISO; (f) refinancing outstanding callable bonds to lower the overall cost of debt; and (g) implementation of an enterprise-wide and energy/fuel risk management program. As a component of NYPA's strategic plan, efforts to modernize NYPA's generation and transmission infrastructure are being developed to increase flexibility and resiliency, to serve customers' needs in an increasingly dynamic energy marketplace, and to support the State's clean energy goals.

The Authority provides customers with wide-ranging on-site energy solutions including energy data analytics, planning, operations and the development of capital projects such as energy efficiency, distributed generation, advanced technologies and renewables. The Authority also has the responsibility for implementation of: (a) the Governor's Executive Order No. 88, known as "BuildSmart NY" to improve energy efficiency at State owned and managed buildings; (b) the "Five Cities Energy Efficiency Implementation Plans" (the cities of Albany, Buffalo, Rochester, Syracuse and Yonkers) to reduce overall energy costs and consumption, strengthen the reliability of energy infrastructure, create jobs in local clean energy industries and contribute to a cleaner environment; and (c) the "K-Solar" program to reduce schools' energy costs through the use of solar power. From January 2013 through September 2018, NYPA has provided approximately $477.7 million in financing for energy efficiency projects covered by Executive Order 88. Overall financing from January 2013 through September 2018 for energy efficiency projects for all customers (including EO88 facilities) amounts to $1.199 billion.

To achieve its goal of promoting clean energy and efficiency, NYPA implements energy services for the benefit of its power supply customers and for various other public entities throughout the State. Under these programs, the Authority finances the installation of energy saving measures and equipment, which are owned by the customers and public entities upon their installation and which focus primarily on energy efficiency, renewables, resiliency and sustainability. These programs provide funding for, among other things, audits, retro-commissioning, energy master plans, high efficiency lighting technology, high efficiency heating, ventilating and air conditioning systems and controls, boiler and chiller upgrades, steam traps, thermal storage, building envelope upgrades, combined heat and power, microgrids, solar photovoltaics, fuel cells, water/waste water systems, replacement of inefficient refrigerators, distributed generation technologies and emerging energy and utility technologies. The Authority has authorized, as of September 2018, the expenditure of an aggregate of $5.1 billion on these programs.

Effective January 1, 2017, the New York State Canal Corporation (the "Canal Corporation") became a subsidiary of the Authority, and the Authority assumed certain powers and duties relating to the Canal System (as defined below) to be exercised through the Canal Corporation. The Canal Corporation is responsible for a 524-mile canal system consisting of the Erie, Champlain, Oswego, and Cayuga-Seneca canals (the "Canal System"). See "(c) Canal Corporation" for more information.

(a) NYPA's Relationship with New York State Government

The Authority is a corporate municipal instrumentality and political subdivision of the State of New York (the "State") created in 1931 by Title 1 of Article 5 of the Public Authorities Law, Chapter 43-A of the Consolidated Laws of the State, as amended from time to time (the "Act"), to help provide a continuous and adequate supply of dependable electric power and energy to the people of the State.

The Authority's operations are overseen by a Board of Trustees. NYPA's Trustees are appointed by the Governor of the State, with the advice and consent of the State Senate. The Authority is a fiscally independent public corporation that does not receive State funds, tax revenues or credits. NYPA generally finances construction of new projects through a combination of internally generated funds and the sale of bonds and notes to investors, and pays related debt service with revenues from the generation and transmission of electricity. Income of the Authority and properties acquired by it for its projects are exempt from taxation.

(b) Budget Process

NYPA operates in a capital intensive industry where operating revenues and expenses are significant and highly variable due to the volatility of electricity prices and fuel costs. NYPA's operations are not only subject to electric and fuel cost volatility, but also changing water flows that have a direct effect on hydroelectric generation levels. This 2019-2022 Approved Budget and Financial Plan ("Approved Four-Year Plan") relies on data and projections developed through the following timeframe:

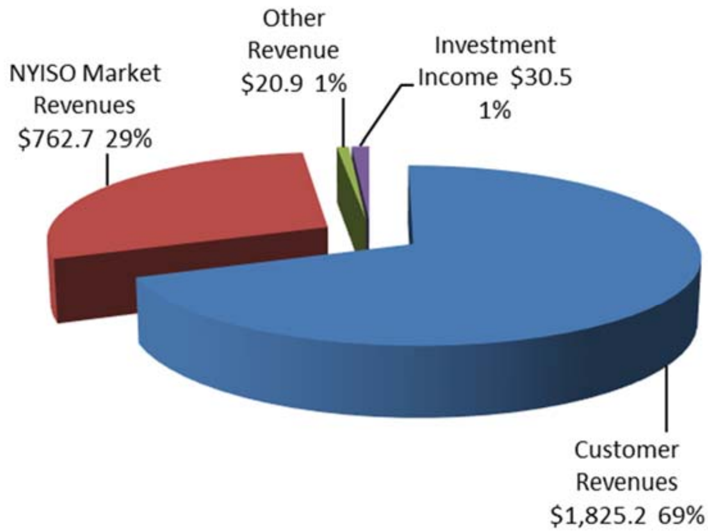
- During July – October 2018, developed preliminary forecasts of electric prices (both energy and capacity), ancillary services revenue and expenses, and fuel expenses; NYPA customer power and energy use; NYPA customer rates; generation levels at NYPA power projects reflecting scheduled outages; and purchased energy & power requirements and sources.
- During July – October 2018, developed preliminary operations and maintenance, and capital expense targets.
- November 2018, posted Proposed Four-Year Plan for public inspection at five convenient locations and on NYPA's internet website.
- During October – November 2018, updated and finalized all forecasts and cost estimates.
- During November – December 2018, integrated above data to produce the 2019-2022 Final Budget and Financial Plan.
- Seek authorization of NYPA's Trustees to approve the 2019-2022 Final Budget and Financial Plan at their meeting currently scheduled for December 11, 2018; submit the information to the State Comptroller's Office; and make the approved document available for public inspection at five convenient locations and on NYPA's internet website.

NYPA's Four-Year Projected Income Statements

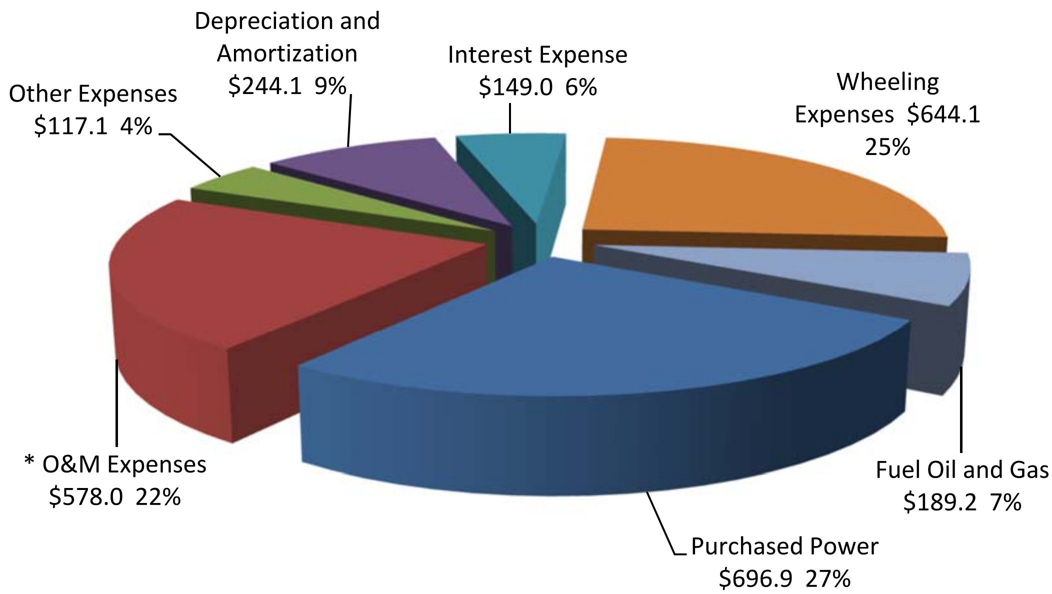
(in Millions)

	2019	2020	2021	2022
Operating Income:				
Customer Revenues	$1,825.2	$1,825.5	$1,885.4	$1,915.9
NYISO Market Revenues	762.7	784.5	806.8	911.8
Other Revenue	20.9	30.3	41.1	45.1
Total Operating Income	2,608.8	2,640.3	2,733.3	2,872.8
Operating Expenses:				
Purchased Power	696.9	688.3	721.8	760.2
Fuel	189.2	198.1	186.2	235.8
Wheeling Expenses	644.1	644.7	645.2	646.1
O&M Expenses	596.3	620.7	631.9	657.1
Other Expenses	117.1	112.7	132.6	128.0
Depreciation and Amortization	244.1	251.4	259.2	265.4
Allocation to Capital	(18.3)	(23.2)	(24.0)	(16.4)
Total Operating Expenses	2,469.4	2,492.7	2,552.9	2,676.2
NET OPERATING INCOME	**139.4**	**147.6**	**180.4**	**196.6**
Other Income:				
Investment Income	30.5	49.5	53.4	59.8
Other Income	0.0	0.0	0.0	0.0
Total Other Income	30.5	49.5	53.4	59.8
Non-Operating Expenses:				
Interest Expense	149.0	147.8	147.0	147.0
Contributions to State	0.0	0.0	0.0	0.0
Total Non-Operating Expenses	149.0	147.8	147.0	147.0
NET INCOME	**$20.9**	**$49.3**	**$86.8**	**$109.4**

2019 Budget – Sources
(in Millions)



2019 Budget – Uses
(in Millions)



* Reflects NYPA's Base O&M Expenses plus Administrative Expenses less the Allocation to Capital.

NYPA's Statement of Cash Flows

(in Millions)

	2017	2018	2019	2020	2021	2022
Revenue Receipts :						
Sale of Power, Use of Transmission Lines Wheeling Charges and other receipts	$2,503.8	$2,662.7	$2,583.3	$2,621.4	$2,721.5	$2,868.8
Earnings on Investments and Time Deposits	17.4	28.9	40.6	49.9	56.8	61.5
Total Revenues	**2,521.2**	**2,691.6**	**2,623.9**	**2,671.3**	**2,778.3**	**2,930.3**
Expenses:						
Operation and Maintenance, including Transmission of Electricity by others, Purchased Power and Fuel Purchases	**(2,167.4)**	**(2,362.4)**	**(2,354.3)**	**(2,376.6)**	**(2,437.3)**	**(2,558.6)**
Debt Service :						
Interest on Bonds and Notes	(51.8)	(60.1)	(63.3)	(67.4)	(72.8)	(76.8)
Bonds and Notes Retired	(58.8)	(33.6)	(34.6)	(37.1)	(23.2)	(60.5)
Total Debt Service	**(110.6)**	**(93.7)**	**(97.9)**	**(104.5)**	**(96.0)**	**(137.3)**
Total Requirements	**(2,278.0)**	**(2,456.1)**	**(2,452.2)**	**(2,481.1)**	**(2,533.3)**	**(2,695.9)**
Net Operations	**243.2**	**235.5**	**171.7**	**190.2**	**245.0**	**234.4**
Capital Receipts :						
Sale of Bonds, Promissory Notes & Commercial Paper	108.9	133.9	513.6	196.2	439.7	273.9
Less : Repayments	(114.9)	0.0	0.0	0.0	(5.0)	(29.8)
Earnings on Construction Funds	0.0	0.0	0.0	0.0	0.0	0.0
Energy Efficiency Receipts	161.5	148.7	169.8	391.9	215.7	254.3
Temporary Asset Transfer Return from NYS	43.0	43.0	43.0	43.0	43.0	43.0
Other	0.0	0.0	0.0	0.0	0.0	0.0
Total Capital Receipts	**198.5**	**325.6**	**726.4**	**631.1**	**693.4**	**541.4**
Capital Additions & Refunds :						
Additions to Electric Plant in Service and Construction Work in Progress, and Other costs	(473.9)	(515.0)	(729.2)	(867.7)	(935.2)	(797.2)
Construction Funds - Net Transfer	0.0	0.0	0.0	0.0	0.0	0.0
Total Capital Additions & Refunds	**(473.9)**	**(515.0)**	**(729.2)**	**(867.7)**	**(935.2)**	**(797.2)**
Net Capital	**(275.4)**	**(189.4)**	**(2.8)**	**(236.6)**	**(241.8)**	**(255.8)**
Net Increase/(Decrease)	**($32.2)**	**$46.1**	**168.9**	**($46.4)**	**$3.2**	**($21.4)**

(c) Budget Assumptions

NYISO Revenue and Expenses
Based on scheduled customer power needs and available electricity generated by NYPA's operating assets, the Authority buys and sells capacity and energy through markets operated by the New York Independent System Operator ("NYISO"). Various NYISO purchased power charges in combination with generation related fuel expenses comprise a large portion of NYPA's operating expenses. A significant amount of the Authority's revenues result from sales of the Authority's generation into the NYISO market for which the energy revenues are projected based on available forward price curves while the capacity revenues are estimated using the NYISO demand curve methodology.

Customer and Project Revenue
The customers served by the Authority and the rates paid by such customers vary with the NYPA facilities designated to serve such loads. These customers are served under contracts and tariffs approved by the Trustees.

St. Lawrence-FDR and Niagara Customers
Power and energy from the St. Lawrence-FDR and Niagara hydroelectric facilities are sold under contract to municipal electric systems, rural electric cooperatives, industrial and other business customers, certain public bodies, investor-owned utilities, and out-of-state customers, with the balance sold into the NYISO market.

The charges for firm and/or firm peaking power and associated energy sold by the Authority, as applicable, to the fifty-one municipal electric systems and rural electric cooperatives in New York State; two public transportation agencies; three investor-owned utilities for the benefit of rural and domestic customers; and seven out-of-state public customers have been established on the basis of the cost to serve these loads. This Approved Four-Year Plan models Trustee-approved rate changes for customers as well as prospective rate changes.

Niagara's expansion and replacement power industrial customers and St. Lawrence-FDR's industrial customers are allocated over 35% of the firm contract demand of the plants. Sale of expansion and replacement power historically had been handled on a sale-for-resale basis through National Grid and New York State Electric and Gas. However, the direct sale of low cost hydro power to these customers commenced July 1, 2013. As a result, NYPA is now the load-serving entity for these transactions.

Legislation enacted in March 2011, effective July 2012, created a new economic development power program, the ReCharge New York Power Program ("RNYPP"), to replace two other economic development programs: the Power for Jobs ("PFJ") and Energy Cost Savings Benefits ("ECSB") programs. RNYPP is a permanent power program administered by the Authority and the Economic Development Power Allocation Board ("EDPAB"). The RNYPP utilizes 455 MW of hydropower from the Authority's Niagara and St. Lawrence-FDR projects combined with up to 455 MW of other power procured by the Authority from other sources. The 455 MW of hydropower was, until August 1, 2011, provided to residential and domestic customers of three upstate utilities. The 910 MW of power is available for allocations to eligible new and existing businesses and not-for-profit corporations under contracts of up to seven years. PFJ and ECSB program customers that applied for, but were not awarded RNYPP allocations, were eligible for certain transitional electricity discounts. This transitional electricity discounts program provided for declining levels of discounts through June 30, 2016 when the program terminated. As of June 30, 2018, approximately $12 million of such discounts have been paid with approximately an additional $2 million in payments remaining to be made. The RNYPP legislation also authorizes the Authority, as deemed feasible and advisable by the Trustees, to provide annual funding of $100 million for the first three years following withdrawal of the hydropower from the rural and domestic customers, then $70 million for the fourth year, $50 million for the fifth year, and $30 million each year thereafter, for the purpose of funding a residential consumer discount program for those customers that had previously received this hydropower. Revenues earned from the sale of unused RNYPP power into the wholesale market may be used to offset the cost of these residential discounts. The Authority's Trustees have authorized the release of a total $534 million for the period from August 2011 to December 2018 in support this residential discount program. The Authority supplemented the market revenues used to fund the residential discount program with internal funds, totaling cumulatively $79 million from August 2011 through June 30, 2018.

In June, 2016 the Authority made an agreement for the sale of 245 MW of firm hydroelectric power and energy from the St. Lawrence-FDR project to the Aluminum Company of America ("ALCOA") at its West Plant facilities. This contract with the ALCOA for an aggregate of 245 MW has been executed effective October 1, 2015 through March 31, 2019, replacing prior long-term contracts with ALCOA. The contract provides for rate adjustments based upon a formula containing various indices, and has provisions for price adjustments based on the price of aluminum on the London Metal Exchange. The contract has job compliance provisions based on employment commitments. In response to certain economic factors surrounding the aluminum smelting industry, and in response to ALCOA's announcement that it would curtail smelting operations at its Massena plant, the Authority's Trustees in December 2015 approved execution of this Agreement with ALCOA to replace prior power sales contracts that totaled 478 MW.

The Authority estimates that the total costs associated with the relicensing of the St. Lawrence-FDR Project in 2003 for a period of 50 years will be approximately $210 million, of which approximately $199.4 million has already been spent as of June 30, 2018. These total costs could increase in the future as a result of authorities reserved by FERC in the license for the St. Lawrence-FDR Project issued in 2003. The Authority is collecting in its rates for the sale of St. Lawrence-FDR power amounts necessary to fund such relicensing costs.

Chapter 545 of the laws of 2014 enacted the "Northern New York Power Proceeds Act" ("NNYPPA"). The NNYPPA authorizes the Authority, as deemed feasible and advisable by the Trustees, to deposit net earnings from the sale of unallocated St. Lawrence County Economic Development Power ("SLCEDP") by the Authority in the wholesale energy market into an account known as the Northern New York Economic Development Fund ("NNY Fund") administered by the Authority, and to make awards to eligible applicants that propose eligible projects that satisfy applicable criteria. The NNYPPA established a five-member allocation board appointed by the Governor to review applications seeking NNYED Fund benefits and to make recommendations to the Authority concerning benefits awards.

SLCEDP consists of up to 20 MW of hydropower from the Authority's St. Lawrence-FDR Power Project which the Authority has made available for sale to the Town of Massena Electric Department ("MED") for MED to sub-allocate for economic development purposes in accordance with a contract between the parties entered into in 2012 (the "Authority-MED Contact"). The NNYPPA defines "net earnings" as the aggregate excess of revenues received by the Authority from the sale of energy associated with SLCEDP sold by the Authority in the wholesale energy market over what revenues would have been received had such energy been sold to MED on a firm basis under the terms of the Authority-MED Contract. For the first 5 years after enactment, the amount of SLCEDP the Authority could use to generate net earnings may not exceed the lesser of 20 MW or the amount of SLCEDP that has not been allocated by the Authority pursuant to the Authority-MED contract. Thereafter, the amount of SLCEDP that the Authority could use for such purpose may not exceed the lesser of 10 MW or the amount of SLCEDP that has not been allocated. The Authority's estimates of payments from the Authority to the NNY Fund have been incorporated into this Approved Four-Year Plan.

The Western New York Power Proceeds Act ("WNYPPA"), which was enacted on March 30, 2012, authorizes the Authority to deposit net earnings from the sale of unused Expansion Power and Replacement Power from the Authority's Niagara project into the Western New York Economic Development Fund ("WNY Fund") as deemed feasible and advisable by the Authority's Trustees. "Net earnings" are defined as any excess revenue earned from such power sold into the wholesale market over the revenue that would have been received had the power been sold at the Expansion Power and Replacement Power rates. Proceeds from the WNY Fund may be used to support eligible projects undertaken within a 30-mile radius of the Niagara project that qualify under the applicable criteria. The WNYPPA established a five member allocation board appointed by the Governor. The Authority's estimates of payments from the Authority to the WNY Fund have been incorporated into this Approved Four-Year Plan.

SENY Governmental Customers

Various municipalities, school districts and public agencies in New York City and Westchester County are served by the Authority's combined cycle 500-MW plant, the four small hydroelectric plants, the contracted output of the Astoria Energy II plant, and capacity and energy purchased by the Authority in the NYISO markets. Sales into the NYISO of energy generated by these resources and grandfathered transmission rights offset the cost of the energy purchased.

In 2005, the Authority and its eleven New York City governmental customers, including the Metropolitan Transportation Authority, the City of New York, the Port Authority of New York and New Jersey (Port Authority), the New York City Housing Authority, and the New York State Office of General Services, entered into long-term supplemental electricity supply agreements (2005 LTAs) with a term through December 31, 2017. Under the 2005 LTAs, the NYC Governmental Customers agreed to purchase their electricity from the Authority through December 31, 2017.

In 2018, the Authority executed new supplemental long-term electricity supply agreements (2018 LTAs) with ten of its eleven NYC Governmental Customers. The new supplemental agreements with the remaining NYC Governmental Customer is pending board and/or regulatory approvals.

Under the 2018 LTAs, effective January 1, 2018, the NYC Governmental Customers who have signed on have agreed to purchase their electricity from the Authority through December 31, 2027, with the NYC Governmental Customers having the right to (1) terminate at any time upon at least 12 months' notice or (2) terminate effective December 31, 2022 upon at least 6 months' notice. Under the 2018 LTAs, fixed costs were set for each customer and are subject to renegotiation after five years. Variable costs, including fuel, purchased power and NYISO related costs, will be passed through to each customer by an energy charge adjustment.

The Authority's other Southeastern New York (SENY) Governmental Customers are Westchester County and numerous municipalities, school districts, and other public agencies located in Westchester County (collectively, the "Westchester Governmental Customers"). The Authority has entered into a supplemental electricity supply agreement with all 103 Westchester Governmental Customers. Among other things, under the agreement, an energy charge adjustment mechanism is applicable, and customers are allowed to partially terminate service from the Authority on at least two months' notice prior to the start of the NYISO capability periods. Full termination is allowed on at least one year's notice, effective no sooner than January 1 following the one year notice.

Blenheim-Gilboa Customers

The remaining NYC Governmental Customer not signed onto the 2018 LTA is still taking a share of the 250 MWs of firm capacity allocated to the entire customer group under the 2005 LTA. The remainder of the plant's capacity can be used to meet the requirements of some of the Authority's other business and governmental customers and/or sold in the NYISO market.

Small Clean Power Plants ("SCPPs")

In the summer of 2001, the Authority placed in operation ten 44-MW natural-gas-fueled SCPPs in New York City and one on Long Island, to address a potential local reliability deficiency in the New York City metropolitan area and its potential impact on statewide reliability. As a result of the settlement of litigation relating to certain of the SCPPs, the Authority has agreed under the settlement agreement to cease operations at the Vernon location, which houses two units, under certain conditions and if the Mayor of New York City directs such cessation. No such cessation has occurred. The plant at the Vernon location is assumed to be operating during the forecast period pursuant to the terms of an agreement entered into at the time of construction.

For this Approved Four-Year Plan, it is assumed that the capacity of the SCPPs may be used by the Authority to meet its customers' capacity requirements, sold to other users via bilateral arrangements or sold into the NYISO capacity auction. NYPA sells the energy produced by the SCPPs into the NYISO energy market.

Flynn

The Flynn project currently operates as a merchant plant, with capacity and energy output sold into the NYISO market. The forecast is for Flynn to operate as a merchant plant for the next four years.

Transmission Projects

The Authority owns approximately 1,400 circuit miles of high voltage transmission lines, the major lines being the 765-kV Massena-Marcy line, the 345-kV Marcy-South line, the 345-kV Niagara-to-Edic line, and the 345-kV Long Island Sound Cable.

Since the formation of the NYISO in November 1999, cost recovery for the Authority's provision of transmission service over its facilities has been governed by the NYISO tariff which included an annual transmission revenue requirement ("TRR") for NYPA of $165.4 million. NYPA receives cost recovery through the NYISO tariff mechanism known as the NYPA Transmission Adjustment Charge ("NTAC"), which recovers transmission costs on a statewide basis after accounting for NYPA's revenues received from pre-existing customer transmission service contracts, a Transmission Service Charge assessed on customers in NYPA's upstate load zone, and other sources.

In July 2012, the Authority filed for its first TRR increase with FERC. The Authority's filing resulted in an uncontested settlement approved by FERC for a new, $175.5 million TRR applicable to the Authority, effective August 1, 2012. The increased TRR is necessary to cover increased operating and maintenance expenses of NYPA's bulk transmission system, as well as to make necessary capital improvements.

In January 2016, the Authority filed for a transmission revenue requirement formula rate with FERC. In March 2016, FERC accepted the filing and made it effective April 1, 2016, as requested, subject to hearing and settlement judge procedures. The Authority requested a formula rate to more efficiently recover its increased capital expenditures needed to maintain the reliability of its transmission system. The Authority filed an unopposed Offer of Settlement on September 30, 2016 that fully resolves the issues raised by interested parties in settlement negotiations concerning the formula rate. Separately, the annual TRR under the formula of $190.0 million initially made effective April 1 was updated on July 1, 2016 to $198.2 million pursuant to the formula rate annual update process. Effective July 1, 2018, the Transmission Revenue Requirement is $226.5 million, including the revenue requirement for the Marcy South Series Compensation project. Annual updates commensurate with projected costs are assumed to continue throughout the forecast period.

The Authority is moving forward with its plans to replace a major section of the Moses Adirondack Line, one of the Authority's backbone transmission facilities. The replacement project covers 86 miles of 230 kV transmission line from Massena to the town of Croghan in Lewis County and consists of rebuilding two existing 230kV transmission lines between Moses and Adirondack substations. These transmission lines are over 70 years old. Seventy eight miles of each line are constructed with wood poles which are in poor physical condition. The remaining eight miles are constructed with steel structures which are in good condition. This project will rebuild only the wood pole section of the transmission lines which will be replaced with steel monopole structures. These new structures will be designed to 345kV standards but will be operated at 230kV.

The Authority anticipates that the Moses Adirondack line will support the transmission of growing levels of renewable generation located in upstate New York and Canada, such as wind and hydroelectricity, and assist in meeting the State's renewable energy goals. The rebuilt line is also expected to enhance grid reliability by supporting the NYISO's black start plan. The Authority filed its application for Article VII approval with the New York Public Service Commission in April 2018. Construction is expected to take four years and begin in 2020. In July 2017, the Authority received authorization under the NYISO tariff to include the costs of this replacement project in its NTAC mechanism for cost recovery of the Authority's transmission system costs, which means that the costs will be allocated to all ratepayers in the State. This Approved Four-Year Plan includes revenues and costs associated with the Moses Adirondack project.

On August 1, 2014, the Public Policy Transmission Planning Process administered by the NYISO invited solicitations to address the AC Transmission Public Policy Need ("AC Proceeding") for new transmission lines to relieve the congested Central East and UPNY/SENY transmission interfaces. NYISO staff issued a report recommending the AC Proceeding proposals submitted by NYPA and our partner LS Power be selected. The projects proposed by NYPA and LS Power include the construction of over 300 miles of new 345kV and 115kV transmission lines and four new substations. These projects will be presented to the NYISO Board of Directors for approval, and are recommended to be placed in service by 2023. Given that approvals are required before the proposals may proceed, this Approved Four-Year Plan does not include revenues and costs associated with the AC Proceeding projects.

Hudson Transmission Project

In 2011, the Trustees authorized Authority staff to enter into an agreement with Hudson Transmission Partners, LLC ("HTP") for the purchase of capacity to meet the long-term requirements of the Authority's NYC Governmental Customers and to improve the transmission infrastructure serving New York City through the transmission rights associated with HTP's transmission line (the "Line") extending from Bergen County, New Jersey in the PJM Interconnection, LLC (PJM) transmission system, to Consolidated Edison Company of New York, Inc.'s ("Con Edison") West 49th Street substation in the NYISO. Specifically, the Authority executed a Firm Transmission Capacity Purchase Agreement ("FTCPA") with HTP which would have entitled the Authority to 75% of the Line's 660 MW capacity, or 495 MW, for 20 years. The Authority's capacity payment obligations under the FTCPA began upon the Line's commencement of commercial operation, which occurred on June 3, 2013. Also upon commercial operation, the FTCPA obligates the Authority to reimburse HTP for the cost of interconnection and transmission upgrades in New York and New Jersey associated with the Line and to pay for all remaining upgrade costs as they are incurred. Such interconnection and transmission upgrades have been completed. As of June 30, 2018, the Authority paid approximately $336 million of such costs related to the interconnection and transmission upgrades. The Authority's obligations under the FTCPA also include payment of the Regional Transmission Enhancement Plan ("RTEP") charges allocated to HTP in accordance with the PJM tariff. Such RTEP costs are significant and are discussed below.

It is estimated that the revenues derived from the Authority's rights under the FTCPA will not be sufficient to fully cover the Authority's costs under the FTCPA during the 20-year term of the FTCPA. In August 2018, the Authority estimated that its under-recovery of costs for the Line could be in the range of approximately $92 million to $95 million per year over the next five years. The under-recovery estimates were based on projections of the capacity payment obligations, the costs of interconnection and transmission upgrades, RTEP charges, and energy revenues.

PJM's RTEP cost allocation methodology for certain upgrades, such as the Bergen-Linden Corridor ("BLC") project built by Public Service Electric & Gas Company ("PSE&G") in New Jersey, has been challenged at FERC in numerous proceedings by Con Edison, the Authority, HTP and other parties on the grounds that PJM has disproportionately allocated the costs of those projects to those parties. In a FERC proceeding, the Authority challenged the RTEP share of the BLC project costs allocated to HTP that were effective May 1, 2017 as a result of Con Edison's termination of its PJM transmission rights. The cost allocations shifted approximately $533 million in RTEP charges for the BLC project that had been previously allocated to Con Edison to HTP. Such costs are in addition to the $111 million in RTEP charges for the BLC project that had previously been allocated to HTP. RTEP costs relating to the BLC project would be paid over a number of years after construction commenced in 2017. Phase I of the BLC project was completed in June 2016, Phase II was completed in the spring of 2017 and Phase III construction was finalized in July 2018.

From June 2013 through June 2018, the Authority has paid approximately $90 million in RTEP charges for the Line, including the BLC project. In addition, the Authority expects to pay an additional approximately $7.3 million through August 2019 for pre-2013 RTEP projects whose allocations were previously challenged at FERC. These RTEP allocations arise from a contested settlement that FERC approved in May 2018 over the objections of the Authority and HTP.

In July 2017, the Authority, together with HTP, sought to relinquish the Firm Transmission Withdrawal Rights ("FTWRs") held by HTP on the Line. HTP's FTWRs formed the basis for the allocation of RTEP costs to HTP, which are the Authority's obligation under the FTCPA. In the resulting FERC order dated December 15, 2017, FERC determined that HTP may relinquish its firm rights effective immediately. Accordingly, when PJM's annual RTEP cost allocation update for 2018 was filed, the Authority's obligation to pay RTEP charges related to the BLC project was 100% eliminated for 2018 and beyond. FERC issued its March 5, 2018 order endorsing PJM's new cost allocation. Both the December 15, 2017 and the March 5, 2018 FERC orders are pending rehearing. On July 19, 2018, FERC established procedures to allow parties to resolve by settlement the continuing disputes in these and several other ongoing RTEP proceedings that relate to the BLC project costs. Settlement efforts commenced in August 2018. If no settlement is reached, FERC will need to issue orders deciding these proceedings.

On March 31, 2017, the Authority and HTP executed an amendment to the FTCPA. In exchange for the Authority extending the cure period for HTP to replace underwater cables that have been subject to failure and which have resulted in the Line being out of service, under the amended FTCPA the Authority received HTP's assurances to pursue certain remedies at FERC concerning the termination of the 320 MW of FTWRs in order to eliminate RTEP assessments and a guarantee that if PJM RTEP assessments cannot be eliminated despite HTP's efforts to terminate the FTWRs, that HTP will cancel its interconnection service agreement ("ISA") to physically disconnect the Line from the PJM transmission system, causing termination of all RTEP allocations. The FERC orders from December 15, 2017 and March 5, 2018 have fulfilled the goal of eliminating the RTEP assessments associated with the BLC project (though subject to further legal processes as described above). In addition, the Authority and HTP agreed to: (a) based upon RTEP costs already paid, increase, by $40 million, the size of the tracking account that is used to offset the cost to purchase the Line at the end of the FTCPA term, at the Authority's option, and (b) shared rights to direct power on the Line in the opposite direction of its current flow should market conditions present revenue opportunities for selling capacity and energy from New York to New Jersey. In November 2017, HTP completed the cable replacement and, pursuant to the March 31, 2017 amendments, the Authority increased the leased portion of the Line's capacity from 75% to 87.12%, bringing the total leased capacity from 495 MW to 575 MW at a monthly capacity charge rate that represents a decrease in the unit price (on a $/MW-month basis) paid to HTP in the original FTCPA. The Authority estimates that increasing the leased portion of the line to 87.12% will increase its capacity payments by approximately $6 million to $9 million per year over the term of the FTCPA.

Purchased Power Expenses

Capacity, energy and ancillary service purchases made on behalf of customers (except for those made through previously approved purchased power agreements) are assumed to be transacted at the market clearing price in the wholesale market. For purposes of developing this Approved Four-Year Plan, projected energy rates are based on available forward price curves while the capacity rates are estimated using the NYISO demand curve methodology.

Fuel Expenses
Fossil-fuel purchases in this Approved Four-Year Plan are based on expected net generation levels determined through the use of an economic dispatch model for the Authority's plants and on available forward fuel price curves. Fuel expenses also include the costs associated with emission credit requirements under the Regional Greenhouse Gas Initiative ("RGGI"). RGGI requires the Authority to buy emission credits for its fossil-fuel plants, and the Authority also purchases such credits for the contracted Astoria Energy II plant. The projections for RGGI costs are based on projected emission rates and forecasted consumption of natural gas and oil, with such costs recovered either through specific customer contract pass-through provisions or from the wholesale market.

Wheeling Expenses
Wheeling (i.e., the transmission and/or delivery of power and energy to customers over the lines of a third party) expenses are based on contractual and/or tariff rates of the service provider, and are recovered through pass-through provisions in customer contracts.

Strategic Initiatives
As part of our Vision 2020 Strategic Plan, the Authority is pursuing six strategic initiatives, which are in varying stages of implementation. These initiatives include, but are not limited to:

- Customer Solutions – to develop innovative, cost-effective and resilient energy solutions that enable customers to achieve their energy goals in new ways;
- Asset Management – to strengthen investment planning through enhanced use of technology, data, people and processes;
- Smart Generation and Transmission – to deploy advanced technologies that ensure that grid operations become increasingly intelligent;
- Workforce Planning – to identify and acquire the skills that NYPA will need to succeed, through internal training, succession planning, employee retention and external recruiting;
- Knowledge Management – to promote enhanced sharing of information and knowledge as part of day-to-day operations;
- Process Excellence – to enhance processes in order to optimize resources and costs, manage risk, and reduce environmental impact.

In 2018, at the direction of the Trustees, NYPA initiated two new key strategic activities – the aim being to identify strategic investment opportunities and build compelling business cases to:

- Multiply the impact and/or shorten the implementation time of our existing six strategic initiatives;
- Support the achievement of the State's clean energy goals, with a focus on:
  - Building out statewide electric vehicle charging infrastructure: In May 2018, the Authority's Trustees approved an overall allocation of up to $250 million to be used through 2025 for an electric vehicle acceleration initiative and authorized $40 million for the first phase of the initiative. In October 2018, the Authority's Trustees awarded contracts valued at up to $60 million to several firms that will provide electric vehicle supply equipment, of which $40 million would be used to support the electric vehicle acceleration initiative
  - Driving down the cost of Offshore Wind
  - Building the necessary flexibility in our electricity grid in order to ensure as many low cost, clean, reliable electrons are being consumed when and where they are needed.

This Approved Four-Year Plan reflects costs and revenues with respect to these initiatives.

Canal Corporation
Effective January 1, 2017, the Canal Corporation became a subsidiary of the Authority, and the Authority assumed certain powers and duties relating to the Canal System to be exercised through the Canal Corporation.

The Canal Corporation operates at a loss and is expected to require substantial operating and maintenance support and capital investment. The Canal Corporation's expenses are expected to be funded by transfers of funds from the Authority. Any transfer of funds would be subject to approval by the Authority's Board of Trustees and compliance with the Authority's General Resolution Authorizing Revenue Obligations, as amended and supplemented. Certain expenses eligible for reimbursement are expected to be reimbursed to the Authority by moneys held in the Canal Development Fund maintained by the State Comptroller and the Commissioner of Taxation and Finance.

Given the age of the Canal System, the Authority expects that significant maintenance and capital investments will be required to assure the Canal System's continuing operation. The Authority's budget and financial plan for 2019-2022 includes Canal-related operating expenditures of approximately $85 million per year and capital expenditures of approximately $40 million per year. The Authority will continue to evaluate the condition of the Canal System and expects to allocate additional funding if deemed necessary through its annual budgeting process.

Investment Income

Investment of the Authority's funds is administered in accordance with the applicable provisions of the Bond Resolution and with the Authority's investment guidelines. These guidelines comply with the New York State Comptroller's investment guidelines for public authorities and were adopted pursuant to Section 2925 of the New York Public Authorities Law.

The Authority's investments are restricted to (a) collateralized certificates of deposit, (b) direct obligations of or obligations guaranteed by the United States of America or the State of New York, (c) obligations issued or guaranteed by certain specified federal agencies and any agency controlled by or supervised by and acting as an instrumentality of the United States Government, and (d) obligations of any state or any political subdivision thereof or any agency, instrumentality or local government unit of any such state or political subdivision which is rated in any of the three highest long-term rating categories, or the highest short-term rating category, by nationally recognized rating agencies. The Authority's investments in the debt securities of Federal National Mortgage Association and Federal Home Loan Bank, Federal Farm Credit Bank and Federal Home Loan Mortgage Corp. were rated Aaa by Moody's Investors Services, AAA by Fitch Ratings, and AA+ by Standard & Poor's. All of the Authority's investments in U.S. debt instruments are issued or explicitly guaranteed by the United States Government.

Operations and Maintenance Expenses

NYPA's O&M plan for 2019-2022 is as follows:

Operations and Maintenance Forecast
(in Millions)

	2019	2020	2021	2022
Payroll	**$ 239.3**	**$ 244.3**	**$ 250.7**	**$ 257.3**
Benefits	**$ 127.9**	**$ 129.7**	**$ 132.6**	**$ 135.5**
Materials/Supplies	**$ 24.0**	**$ 24.8**	**$ 25.5**	**$ 26.1**
Fees	**$ 10.3**	**$ 10.5**	**$ 10.8**	**$ 11.2**
Office & Station	**$ 26.2**	**$ 26.8**	**$ 27.6**	**$ 28.4**
Maintenance Repair & Service Contracts	**$ 142.0**	**$ 155.3**	**$ 154.6**	**$ 167.6**
Consultants	**$ 48.2**	**$ 51.7**	**$ 53.0**	**$ 54.4**
Charges to:				
Outside Agencies	$ (4.4)	$ (6.1)	$ (6.2)	$ (6.3)
Capital Programs	$ (48.6)	$ (48.6)	$ (49.8)	$ (51.0)
Total Charges	**$ (53.0)**	**$ (54.7)**	**$ (56.0)**	**$ (57.3)**
Research & Development	**$ 8.7**	**$ 9.0**	**$ 9.2**	**$ 9.5**
Subtotal	**$ 573.6**	**$ 597.4**	**$ 608.0**	**$ 632.7**
Astoria Energy II	**$ 22.7**	**$ 23.3**	**$ 23.9**	**$ 24.6**
TOTAL NYPA O&M	**$ 596.3**	**$ 620.7**	**$ 631.9**	**$ 657.3**

Depreciation and Amortization Expenses
Depreciation of capital assets is generally provided on a straight-line basis over the estimated lives of the various classes of capital assets. The related depreciation provisions at December 31, 2017 expressed as a percentage of average depreciable capital assets was 2.6%.

Other Expenses
The Other Expenses category largely reflects various accruals and other miscellaneous expenses (e.g., payments to the NNY Fund and WNY Fund), some of which require Trustee authorization on a case-by-case basis.

(d) Self – Assessment of Budgetary Risks

Set forth below is a summary of certain of the risks associated with the Authority's assets and operations. The following discussion of risks is intended only as a summary and does not purport to identify all of the risk factors that may affect the Authority's assets and operations. Any one or more of the factors discussed and others could adversely affect the Authority's operations, assets, revenues and expenses to an extent that cannot be determined at this time.

Regulatory Risks
On August 1, 2016, the New York Public Service Commission ("NYPSC") issued an order establishing a Clean Energy Standard (the "CES Order") to implement the clean energy goals of the State Energy Plan. Pursuant to the CES Order, load serving entities identified in the order are required to purchase "Zero Emission Credits" ("ZECs") from the New York State Energy Research Development Authority ("NYSERDA") to support the preservation of existing at risk zero emissions nuclear generation. The Authority is not subject to NYPSC jurisdiction for purposes of the CES Order but has assumed an obligation to purchase ZECs consistent with the terms of the CES Order and intends to seek recovery of such costs from the Authority's customers. On January 31, 2017, the Authority's Trustees authorized (a) participation in the NYPSC's ZEC program and (b) execution of an agreement with NYSERDA to purchase ZECs associated with the Authority's applicable share of energy sales. The Authority and NYSERDA executed an agreement covering a two year period from April 1, 2017 to March 31, 2019 under which the Authority committed to purchase ZECs in a quantity based on its proportional load in the New York control area. As of October 2018, the Authority estimates that it will incur ZEC purchase costs associated with participation in the ZEC program of approximately $264.8 million in aggregate over the 2019-2022 period, of which approximately $18.4 million is not expected to be recovered under customer contracts that predate the adoption of the CES Order.

The Regional Greenhouse Gas Initiative (the "RGGI") is a cooperative effort by Northeastern and Mid-Atlantic states, including New York, to reduce carbon dioxide emission levels. Participating states have established a regional carbon dioxide emissions cap from the power sector (fossil fuel-fired power plants 25MW or greater). The emissions cap reduces by 2.5% annually until 2020. Central to this initiative is the implementation of a multi-state cap-and-trade program with a market-based emissions trading system. The program requires electricity generators to hold carbon dioxide allowances in a compliance account in a quantity that matches their total emissions of carbon dioxide for the compliance period. The Authority's Flynn plant, the SCPPs, and 500-MW Plant are subject to the RGGI requirements, as is the Astoria Energy II plant. The Authority has participated in program auctions to acquire carbon dioxide allowances, which the Authority requires to cover operation of its fossil-fueled power plants and the Astoria Energy II plant, and expects to recover RGGI costs through its power sales revenues. The number of allowances offered in the auction by the RGGI cap and trade program was reduced from allowances covering 165 million tons of carbon dioxide emissions in 2013 to 60.3 million tons in 2018, and will decline by 2.5% each year through 2020. On December 19, 2017, the RGGI states released an updated Model Rule that includes an additional 30% regional cap reduction between 2020 and 2030. The Authority is monitoring federal legislation and proposed programs that would impact RGGI.

On August 3, 2015, the United States Environmental Protection Agency (the "EPA") released its final Clean Power Plan ("CPP") Rule for existing power plants to reduce carbon dioxide emissions nationwide from electric utility generating units. The CPP Rule was stayed by the U.S. Supreme Court on February 9, 2016 pending disposition of petitions for review before the U.S. Court of Appeals for the District of Columbia Circuit. Thereafter, the D.C. Circuit Court of Appeals granted EPA's motion to suspend cases challenging the CPP Rule to give the EPA administration time to review the rule. On August 21, 2018, the EPA proposed the Affordable Clean Energy ("ACE") Rule to replace CPP. ACE establishes guidelines for states, including New York, to use when developing plans to limit carbon dioxide emissions from coal-fired power plants. The EPA will take comments on the proposal for 60 days following its publication in the Federal Register and will hold a public hearing. The Authority continues to monitor developments in this area.

During 2011, the EPA issued a series of rulings to establish the Cross-State Air Pollution Rule ("CSAPR"), which was updated in 2016. The CSAPR establishes emission allowance budgets for sulfur dioxide and nitrogen oxides for eastern states, including New York, and requires power plants in those states to hold allowances to cover their emissions. Certain trading of allowances is authorized under the CSAPR. In July 2018, a proposed determination published by the EPA found that the 2016 CSAPR Update to the National Ambient Air Quality Standards ("NAAQS") was sufficient to address the good neighbor provisions of the Clean Air Act, and that no further rulemaking is required to address out-of-state emissions as additional upwind reductions are not required to meet the 2008 ozone NAAQS. The Authority continues to operate its fossil-fueled plants within the allocated allowances and anticipates that operation of its fossil-fueled plants will not be impacted by CSAPR.

Congressional and regulatory action for the increased regulation of air, water and contaminants is periodically considered, and there are potential legislative and regulatory proposals which may affect the electric utility industry, including the Authority, in the future. The impact on the Authority's operations of any such proposals is not presently predictable or quantifiable.

The Authority has flexible rate-setting authority for many of its power sales agreements with customers; however, due to FERC's jurisdiction over the Authority's transmission revenue requirement ("TRR"), the Authority's transmission cost recovery must adhere to FERC standards. In 2017, the Authority filed for a formula rate annual TRR consistent with those principles. The formula rate annual TRR is incorporated into the NYISO Open Access Transmission Tariff ("OATT"). This Approved Four-Year Plan assumes full recovery of eligible future costs under the provisions of the NYISO OATT.

Legislative and Political Risks

A series of legislative enactments have called for the Authority to subsidize business customers and the State's general fund. Legislation enacted into law, as part of the 2000-2001 State budget, as amended up to the present time, has authorized the Authority as deemed feasible and advisable by the Trustees, to make a series of voluntary contributions into the State treasury in connection with the PFJ program and for other purposes as well. The PFJ Program, which had been extended to June 30, 2012, has ended and was replaced by RNYPP, as discussed above. Cumulatively through December 31, 2012, the Authority made voluntary contributions to the State totaling $475 million in connection with the ended PFJ Program.

In the past, the Authority has, from time to time, made voluntary contributions or payments to the State or as otherwise authorized by legislation. Cumulative, between January 1, 2008 and December 31, 2016, the Authority has made contributions to the State totaling $763 million unrelated to the PFJ program. Such payments were authorized by legislation and have been conditional upon the Trustees' determination that such payments are "feasible and advisable". The 2018-2019 Enacted State Budget contains a provision authorizing the Authority as deemed "feasible and advisable by its Trustees" to transfer to the State treasury to the credit of the general fund $20 million for the State fiscal year commencing April 1, 2018, the proceeds of which will be utilized to support energy-related State activities. This Approved Four-Year Plan includes the 2018-2019 Enacted State Budget provision. The Authority cannot predict what additional contributions to the State may be authorized in the future. The Trustees' decision as to whether and to what extent such payments are feasible and advisable will be made based on the exercise of their fiduciary responsibilities and in light of the requirements of the Authority's Bond Resolution, other legal requirements, and all the facts and circumstances known to them at the time of the decision. In May 2011, the Authority's Trustees adopted a policy statement which relates to, among other things, voluntary contributions, transfers, or other payments to the State by the Authority after that date. The policy statement provides, among other things, that in deciding whether to make contributions, transfers, or payments, the Authority shall use as a reference the maintenance of a debt service coverage ratio of at least 2.0, in addition to making other determinations required by the General Resolution.

In addition to the authorization for the voluntary contributions, as a result of budget legislation enacted in February 2009, the Authority was requested to make certain temporary asset transfers to the State of funds held in reserves. Pursuant to the terms of a Memorandum of Understanding dated February 2009 ("MOU") between the State, acting by and through the Director of the Budget of the State, and the Authority, the Authority agreed to transfer $215 million associated with its Spent Nuclear Fuel Reserves by the end of State Fiscal Year 2008-2009. The Spent Nuclear Fuel Reserves are funds that had been set aside for payment to the federal government sometime in the future when the federal government accepts the spent nuclear fuel for permanent storage. The MOU provides for the return of these funds to the Authority, subject to appropriation by the State Legislature and other conditions, at the earlier of the Authority's payment obligation related to the transfer and disposal of the spent nuclear fuel or September 30, 2017. Further, the MOU provided for the Authority to transfer during State Fiscal Year 2009-2010 approximately $103 million of funds set aside for future construction projects, which amounts would be returned to the Authority, subject to appropriation by the State Legislature and other conditions, at the earlier of when required for operating, capital or debt service obligations of the Authority or September 30, 2014.

Both temporary transfers were authorized by the Authority's Trustees and made in 2009.

In lieu of interest payments, the State waived certain future payments from the Authority to the State. The waived payments included the Authority's obligation to pay the State certain governmental costs for central governmental services. The present value of the waivers approximated the present value of the forgone interest income. In the Second Amendment to the MOU discussed below, the Authority and the State agreed to enter into alternative cost recovery agreements for each of State Fiscal Year 2017-18 through State Fiscal Year 2022-23 that the asset transfers have not been fully returned to the Authority. The alternative cost recovery agreements would relieve the Authority of any obligation to make up to $5 million in cost recovery assessment payments to the State in each year. In the event that the cost recovery assessment for a given year exceeds $5 million, the assessment due from the Authority would be limited to the difference between the assessment and $5 million. The State and the Authority entered into the first such alternative cost recovery agreement, dated as of March 31, 2017, with respect to State Fiscal Year 2017-18. In accordance with such agreement, the Authority was not charged an assessment for such State Fiscal Year. This Approved Four-Year Plan assumes no such assessments during the 2019-2022 forecast period.

On April 24, 2014, the Authority and the State executed an Amendment to the MOU which provides that the State shall, subject to appropriation by the State Legislature, return the $103 million (Asset A) in five installments in the following amounts and by no later than September 30 of each of the following State fiscal years: (1) $18 million for State Fiscal Year 2014-2015; (2) $21 million for State Fiscal Year 2015-2016; (3) $21 million for State Fiscal Year 2016-2017; (4) $21 million for State Fiscal Year 2017-2018; and (5) $22 million for State Fiscal Year 2018-2019. By its terms, the Amendment to the MOU became effective when it was approved and ratified by the Authority's Board of Trustees on July 29, 2014. As of September 30, 2018, the Authority has received full repayment of $103 million on Asset A.

The Authority and the State executed a Second Amendment to the MOU, dated as of June 30, 2017, that provides for the return to the Authority of the $215 million (Asset B) in the following amounts and by no later than September 30 of each of the following State fiscal years: (1) $22 million for State Fiscal Year 2017-18, (2) $21 million for State Fiscal Year 2018-19, (3) $43 million for State Fiscal Year 2019-20, (4) $43 million for State Fiscal Year 2020-21, (5) $43 million for State Fiscal Year 2021-22, and (6) $43 million for State Fiscal Year 2022-23. The obligation of the State to return the moneys transferred by the Authority to the State is subject to annual appropriation by the State Legislature. As of September 30, 2018, the Authority has received installment payments of $43 million on Asset B.

Section 1011 of the Power Authority Act ("Act") constitutes a pledge of the State to holders of Authority obligations not to limit or alter the rights vested in the Authority by the Act until such obligations together with the interest thereon are fully met and discharged or unless adequate provision is made by law for the protection of the holders thereof. Several bills have been introduced into the State Legislature, some of which propose to limit or restrict the powers, rights and exemption from regulation which the Authority currently possesses under the Act and other applicable law, or otherwise would affect the Authority's financial condition or its ability to conduct its business, activities, or operations, in the manner presently conducted or contemplated by the Authority. It is not possible to predict whether any of such bills or other bills of a similar type which may be introduced in the future will be enacted. In addition, from time to time, legislation is enacted into New York law which purports to impose financial and other obligations on the Authority, either individually or along with other public authorities or governmental entities. The applicability of such provisions to the Authority would depend upon, among other things, the nature of the obligations imposed and the applicability of the pledge of the State set forth in Section 1011 of the Act to such provisions. There can be no assurance that the Authority will be immune from the financial obligations imposed by any such provision.

Actions taken by the State Legislature or the Executive Branch to cause voluntary contributions or other obligation upon the Authority and which attempt to constrain the discretion of or bypass the Authority's Trustees could negatively affect net income and possibly harm the Authority's credit ratings.

Hydroelectric Generation Risk

The Authority's net income is highly dependent upon generation levels at its Niagara and St. Lawrence-FDR Projects. The generation levels themselves are a function of the hydrological conditions prevailing on the Great Lakes, primarily, Lake Erie (Niagara Project) and Lake Ontario (St. Lawrence-FDR Project). Long-term generation level at the two hydroelectric projects is about 20.2 terawatt-hours ("TWH") annually. The Authority's hydroelectric generation forecast is 21.8 TWH in 2019, 21.9 TWH in 2020, 21.9 TWH in 2021, and 21.9 TWH in 2022. However, these generation amounts are forecasted values, and hydrological conditions can vary considerably from year to year.

The Authority conducted high and low hydroelectric generation sensitivities for 2019-2022 that estimated the potential net income that could result over a reasonable range of hydroelectric generation occurrences. The effects on estimated net income, assuming all other factors remain unchanged, were as follows:

	Low Generation		High Generation	
	Net Hydroelectric Generation	NYPA Net Income Change *(in Millions)*	Net Hydroelectric Generation	NYPA Net Income Change *(in Millions)*
2019	19.4 TWH	($59.4)	23.2 TWH	$35.3
2020	19.5 TWH	($54.6)	23.3 TWH	$32.2
2021	19.5 TWH	($59.7)	23.4 TWH	$35.3
2022	19.5 TWH	($64.7)	23.4 TWH	$38.4

Electric Price and Fuel Risk

Through its participation in the NYISO and other commodity markets, NYPA is subject to electric energy price, fuel price and electric capacity price risks that impact the revenue and purchased power streams of its facilities and customer market areas. Such volatility can potentially have detrimental effects on NYPA's financial condition. To mitigate downside effects, many of NYPA's customer contracts provide for the complete or partial pass-through of these costs. To moderate cost impacts to its customers, NYPA, at times, hedges market risks via the use of financial instruments and physical contracts. Hedges are transacted by NYPA to mitigate the cost of energy or related products needed to meet customer needs; to mitigate risk related to the price of energy and related products sold by NYPA; to mitigate risk related to electric margins (electric sales versus fuel use) where NYPA owns generation or other capacity; and mitigation of geographic cost differentials of energy procured or sold for transmission or transportation to an ultimate location. Commodities able to be hedged include, but are not limited to, natural gas, natural gas basis, electric energy, electric capacity and congestion costs associated with the transmission of electricity.

On July 21, 2010, President Obama signed into law the Dodd-Frank Wall Street Reform and Consumer Protection Act ("DF Act") which addresses, among other things, interest rate and energy related commodity swap transactions of the type in which the Authority engages. The requirements and processes are set forth in regulations promulgated by the Commodities Futures Trading Commission ("CFTC"). Pursuant to CFTC rules, the Authority, as a public entity and electric utility which uses swaps solely to manage its risk, is exempted from posting collateral beyond that of any existing credit support annexes in support of its open over-the-counter hedge positions. These CFTC rules are not anticipated to have significant impact on the Authority's liquidity and/or future risk mitigation activities. CFTC DF Act rules are still being promulgated, and the Authority will continue to monitor their potential impact on the Authority's liquidity and/or future risk mitigation activities.

Other Business Risks

Industry Transformation

Transformative technologies and customer empowerment are creating uncertainty for the Authority and the electric utility industry that can produce new business opportunities or reduced demand for electric energy. Through its Strategic Planning and Risk Management processes, the Authority regularly evaluates its mission, objectives, and customer needs and seeks to appropriately position the Authority to effectively meet the challenges of the transforming electric industry through implementation of initiatives such as a long-term asset management strategy and a suite of customer solutions including new/modified product offerings. The impact on the Authority's operations of any such industry transformation is not presently predictable or quantifiable.

Workforce

Like many other industries, the power and utility sector is realizing increased competition for, and a general shortage of, talent in high skilled areas. This trend is expected to continue and be further impacted by transformations in the industry where new technologies are being developed and deployed. The Authority recognizes the uncertainty with being able to attract and retain the skills and competencies needed to meet stated objectives and regularly evaluates and positions its recruiting, talent development and benefits programs accordingly, through its workforce planning strategic initiative and other ongoing efforts.

Physical and Cyber Security

The Federal Government recognizes the electric utility industry as critical infrastructure for the United States and works closely with the industry to ensure awareness of ongoing threats and that appropriate protections are in place against both physical and cyber-attacks. The Authority constantly assesses the nature of the Physical and Cyber Security risks and adjusts its resources to best anticipate and respond to any threats. With over 1,400 circuit-miles of high voltage transmission lines and 16 power generation facilities across New York State, the Authority recognizes the critical nature of its assets. Investments to harden both physical and cyber assets and their related infrastructure are continually needed to minimize potential adverse impacts to the bulk electric system, detect and deter sabotage attempts, and protect the Authority and customer information.

Catastrophic Natural Events

A catastrophic natural event such as severe weather, flooding or earthquake can negatively affect the operability of Authority assets and the bulk electric system. The Authority regularly evaluates the resiliency of its assets. In addition, the Authority has implemented disaster planning programs relating to Emergency Management, Disaster Recovery and Business Continuity. These plans are based on the specific, unique natural threats at each of its generation facilities. The Authority regularly conducts drills and exercises in order to ensure advance preparation for these types of events. The Authority maintains close working relationships with local first responders and government agencies to ensure its ongoing preparedness.

Canal Corporation

The Authority has identified key risk areas relating to the Canal Corporation and continues to employ and assess risk mitigation options across multiple enterprise risk fronts in an effort to manage or reduce potential exposures. As more actual experience, information and data becomes available, the Authority will adjust and allocate resources accordingly.

Critical Infrastructure Failure

As a generation and transmission business, the Authority is exposed to potential critical infrastructure failure that may lead to service disruption, injury and/or degradation of system reliability impacting financial results. The Authority engages in several activities in an effort to mitigate these risks such as the purchase of insurance, redundancy of major equipment, capital investments, and a robust operational maintenance program.

Occupational Health and Workforce Safety

As a generation and transmission business, the Authority is exposed to a variety of health and safety risks. The health and safety of NYPA's workforce, customers, contractors and the citizens of New York is of the highest priority to the Authority. The Authority has put in place multiple levels of controls, policies, procedures, and training programs in support of reducing and/or eliminating health and safety incidents.

Litigation Risk

St. Regis Litigation

In 1982 and again in 1989, several groups of Mohawk Indians, including a Canadian Mohawk tribe, filed lawsuits (the St. Regis litigation) against the State, the Governor of the State, St. Lawrence and Franklin counties, the St. Lawrence Seaway Development Corporation, the Authority and others, claiming ownership to certain lands in St. Lawrence and Franklin counties and to Barnhart, Long Sault and Croil islands. These islands are within the boundary of the Authority's St. Lawrence-FDR Project and Barnhart Island is the location of significant Project facilities. Settlement discussions were held periodically between 1992 and 1998. In 1998, the Federal government intervened on behalf of all Mohawk plaintiffs.

The parties agreed to a land claim settlement, dated February 1, 2005, which if implemented would have included, among other things, the payment by the Authority of $2 million a year for 35 years to the tribal plaintiffs and the provision of up to 9 MW of low cost Authority power for use on the reservation. The legislation required to effectuate the settlement was never enacted and the litigation continued.

In 2013, all claims against the Authority were dismissed and the lawsuit against the Authority was concluded. On May 28, 2014, the State of New York, the St. Regis Mohawk Tribe, St. Lawrence County and the Authority executed a Memorandum of Understanding ("St. Regis MOU") that outlined a framework for the possible settlement of all the St. Regis land claims. In the St. Regis MOU, the Authority endorses a negotiated settlement that, among other terms and conditions, would require the Authority to pay the Tribe $2 million a year for 35 years and provide up to 9 MW of its hydropower at preference power rates to serve the needs of the Tribe's Reservation. The St. Regis MOU would require an Act of Congress to forever extinguish all Mohawk land claims prior to such a settlement becoming effective.

Any settlement agreement, including the terms endorsed in the St. Regis MOU, would in the first instance need to be negotiated and agreed upon by all parties to the St. Regis litigation, including parties that did not execute the St. Regis MOU, such as the two other Mohawk groups, the federal government and Franklin County. In addition, before any settlement becomes effective and the Authority is obligated to make any payments contemplated by the St. Regis MOU, federal and state legislation must be enacted which approves the settlement and extinguishes all Mohawk land claims.

Auer. V. NYPA

The surviving plaintiff of a case known as Auer I, which resulted in a 1984 order issued by Judge Tenney of the New York State Supreme Court, Oswego County, brought an enforcement action seeking to enforce the 1984 order. The 1984 order related to the manner in which the Authority computes its rates for its preference power customers. By statute, those rates must be as low as possible, which essentially means the Authority must sell the power at its cost. The plaintiff contends that the Authority's rate-making methodology does not adhere to the statutory scheme nor spirit of the Auer I order and subsequent settlement. The plaintiff is seeking monetary damages of an unspecified amount. The plaintiff has also made a motion to add certain other residential customers of certain New York municipal electric systems to the action as additional plaintiffs.

The Authority disputes the plaintiff's rationale and will defend the claim on both substantive and procedural grounds.

Long Island Sound Cable Project

In January 2014, one of the Long Island Sound Cable Project underwater cables was severely impacted by an anchor and/or anchor chain dropped by one or more vessels, causing the entire electrical circuit to fail and the circuit to trip. As a result of the impact to the cable, dielectric fluid was released into Long Island Sound. The Authority incurred approximately $34 million in costs arising from this incident and has recovered approximately $18 million through insurance coverage. The Authority believes that it will be able to recover the full amount of its damages through legal proceedings, insurance coverage and contractual obligations.

Miscellaneous

In addition to the matters described above, other actions or claims against the Authority are pending for the taking of property in connection with its projects, for negligence, for personal injury (including asbestos-related injuries), in contract, and for environmental, employment and other matters. All of such other actions or claims will, in the opinion of the Authority, be disposed of within the amounts of the Authority's insurance coverage, where applicable, or the amount which the Authority has available therefore and without any material adverse effect on the business of the Authority.

(e) Revised Forecast of 2018 Budget
(in Millions)

	Original Budget 2018	Forecast 2018	Variance Favorable/ (Unfavorable) 2018
Operating Revenues:			
Customer Revenues	$1,832.5	$1,878.6	$46.1
NYISO Market Revenues	$843.9	$810.0	($33.9)
Other Revenue	$28.3	$18.6	($9.7)
Total Operating Revenues	$2,704.7	$2,707.2	$2.5
Operating Expenses:			
Purchased Power	$703.3	$733.6	($30.3)
Fuel - Oil and Gas	$217.6	$188.3	$29.3
Wheeling Expenses	$644.8	$638.7	$6.1
O&M Expenses	$577.4	$580.6	($3.2)
Other Expenses	$111.7	$104.5	$7.2
Depreciation and Amortization	$240.2	$238.7	$1.5
Total Operating Expenses	$2,495.0	$2,484.4	$10.6
NET OPERATING INCOME	**$209.7**	**$222.8**	**$13.1**
Other Income:			
Investment Income	$18.5	$14.7	($3.8)
Other Income	$0.0	$0.0	$0.0
Total Other Income	**$18.5**	**$14.7**	**($3.8)**
Non-Operating Expenses:			
Interest & Other Expenses	$151.3	$143.2	$8.1
Contributions to State	$0.0	$0.0	$0.0
Total Non-Operating Expenses	**$151.3**	**$143.2**	**$8.1**
NET INCOME	**$76.9**	**$94.3**	**$17.4**

(f) Reconciliation of 2018 Budget and 2018 Revised Forecast

The 2018 year-end net income forecast is $94.3 million, which is $17.4 million above budget. This positive variance is primarily a result of higher generation margins, lower other expenses, and lower interest expense offset by higher O&M expenses and lower investment income. The higher generation margins are primarily due to higher hydro generation, higher energy and capacity prices, and the sale of natural gas into the market, but largely offset by lower than budgeted hedge mark-to-markets. Lower other expenses are due to the timing of programmatic spending. Higher O&M expenses includes post-budget programmatic and strategic expenditures largely offset by lower Pension and other post-retirement benefits costs. Positive Variance in interest expense relates to the postponement of debt issuances to future periods.

(g) Statement of 2017 Financial Performance

New York Power Authority
Net Income – Actual vs. Budgeted
For the Year ended December 31, 2017
(in millions)

	Actual	Budget	Variance Favorable/ (Unfavorable)
Operating Revenues:			
Customer Revenues	$1,774.7	$1,925.3	($150.6)
NYISO Market Revenues	$777.5	$827.4	($49.9)
Other Revenue	$20.6	$23.0	($2.4)
Total Operating Revenues	**$2,572.8**	**$2,775.7**	**($202.9)**
Operating Expenses:			
Purchased Power	$556.5	$729.2	$172.7
Fuel	$165.0	$226.6	$61.6
Wheeling	$618.2	$642.3	$24.1
O&M Expenses	$563.5	$587.7	$24.2
Other Expenses	$129.4	$143.5	$14.1
Depreciation and Amortization	$241.8	$260.7	$18.9
Allocation to Capital	($13.2)	($17.0)	($3.8)
Impairment Loss	$73.3	$0.0	($73.3)
Total Operating Expenses	**$2,334.5**	**$2,573.0**	**$238.5**
NET OPERATING INCOME	**$238.3**	**$202.7**	**$35.6**
Other Income:			
Investment Income	$20.6	$18.6	$2.0
Other income	$8.0	$0.0	$8.0
Total Other Income	**$28.6**	**$18.6**	**$10.0**
Non-Operating Expenses:			
Contribution to New York State	$0.0	$0.0	$0.0
Interest and Other Expenses	$148.1	$144.2	($3.9)
Total Non-Operating Expenses	**$148.1**	**$144.2**	**($3.9)**
NET INCOME	**$118.8**	**$77.1**	**$41.7**

Net Income for the year ended December 31, 2017 was $118.8 million, which was $41.7 million higher than budget of $77.1 million. The increase in net income was primarily attributable to higher margins on energy and transmission sales, lower operating expenses, lower depreciation, higher investment income, and partially offset by the asset impairment charge for the 500-MW plant. The higher margins on energy was primarily due to higher hydro production. The positive transmission variance was primarily due to lower capacity payments resulting from the continuing HTP line outage. Depreciation was lower due to a transmission rate settlement adjustment and less than planned capital spending. The lower than planned operating expenses reflected underspending in O&M expenses due to less than expected spending in maintenance, consulting, and health insurance costs, and less than anticipated programmatic spending in various areas.

(h) Employee Data – number of employees, full-time, FTEs and functional classification

	2019 Request	2020	2021	2022
Headquarters	899	899	899	899
Operations	933	933	933	933
Transmission	202	202	202	202
R&D	14	14	14	14
Canal Corp	482	482	482	482
TOTAL	**2,530**	**2,530**	**2,530**	**2,530**

(i) Gap-Closing Initiatives – revenue enhancement or cost-reduction initiatives

As the Authority is projecting positive net income for the 2019-2022 period, there are no planned gap-closing programs.

(j) Material Non-Recurring Resources – source and amount

Except as discussed elsewhere in this report, there are no material non-recurring resources expected in the 2019-2022 period.

(k) Shift in Material Resources

There are no anticipated shifts in material resources from one year to another.

(l) Debt Service

New York Power Authority
Projected Debt Outstanding (FYE)
(in thousands)

	2019	2020	2021	2022
Revenue Bonds	$1,029,304	$993,578	$1,147,135	$1,088,102
Subordinated Note	$42,875	$41,460	$40,015	$38,530
Commercial Paper Notes	$593,710	$464,792	$559,090	$600,000
Grand Total	**$1,665,889**	**$1,499,830**	**$1,746,240**	**$1,726,632**

New York Power Authority
Debt Service as Percentage of Pledged Revenues
(in thousands)

	2019		2020		2021		2022	
	Debt Service	**% of Rev.**	**Debt Service**	**% of Rev.**	**Debt Service**	**% of Rev.**	**Debt Service**	**% of Rev.**
Revenue Bonds	$78,923	2.99%	$88,113	3.28%	$76,501	2.75%	$116,535	3.97%
Subordinated Debt	$2,996	0.11%	$3,000	0.11%	$2,996	0.11%	$2,999	0.10%
Commercial Paper Notes	$15,959	0.60%	$13,412	0.50%	$21,537	0.77%	$17,817	0.61%
Grand Total Debt Service	$97,878	3.70%	$104,525	3.89%	$101,034	3.63%	$137,351	4.68%

New York Power Authority
Planned Use of Debt Issuances
(in thousands)

TYPE	Amount	Assumed Interest Rate	Project / Description
Period January 1, 2019 – December 31, 2019			
Tax Exempt Commercial Paper	$33,854	2.63%	Energy Efficiency Program
Taxable Commercial Paper	$7,140	3.47%	Energy Efficiency Program
Tax Exempt Revenue Bonds	$198,029	4.07%	Transmission
Taxable Revenue Bonds	$174,709	3.90%	Robert Moses Power Plant/Lewiston Pump Generating Plant
Total Issued 2019	$413,732		
Period January 1, 2020 – December 31, 2020			
Total Issued 2020	$0		

Period January 1, 2021 – December 31, 2021

Tax Exempt Commercial Paper	$93,000	2.87%	Energy Efficiency Program
Taxable Commercial Paper	$6,298	3.76%	Energy Efficiency Program
Tax Exempt Revenue Bonds	$99,969	4.17%	Transmission
Taxable Revenue Bonds	$75,372	3.92%	Robert Moses Power Plant/Lewiston Pump Generating Plant
Total Issued 2021	$274,639		

Period January 1, 2022 – December 31, 2022

Tax Exempt Commercial Paper	$35,387	2.91%	Energy Efficiency Program
Taxable Commercial Paper	$5,524	3.71%	Energy Efficiency Program
Total Issued 2022	$40,911		

Note: The full faith and credit of the Authority are pledged for the payment of bonds and notes in accordance with their terms and provisions of their respective resolutions. The Authority has no taxing power and its obligations are not debts of the State or any political subdivision of the State other than the Authority. The Authority's debt does not constitute a pledge of the faith and credit of the State or of any political subdivision thereof, other than the Authority.

Scheduled Debt Service Payments

Outstanding (Issued) Debt

	Principal	Interest	Total
2019	$34,581,788	$53,783,438	$88,365,226
2020	$37,141,239	$50,636,223	$87,777,462
2021	$28,228,276	$49,192,451	$77,420,727
2022	$47,694,275	$51,960,395	$99,654,670

Proposed Debt

	Principal	Interest	Total
2019	-	$9,512,106	$9,512,106
2020	-	$16,747,948	$16,747,948
2021	-	$23,613,768	$23,613,768
2022	$12,824,078	$25,872,720	$37,696,798

Total Debt

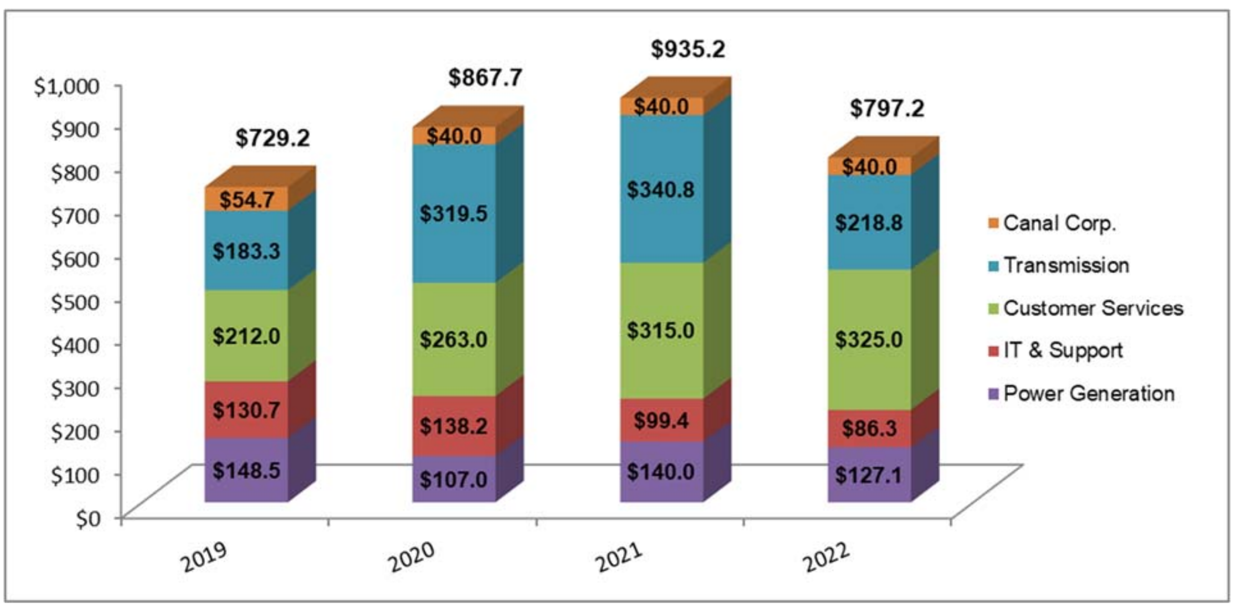
	Principal	Interest	Total
2019	$34,581,788	$63,295,544	$97,877,332
2020	$37,141,239	$67,384,171	$104,525,410
2021	$28,228,276	$72,806,219	$101,034,495
2022	$60,518,353	$76,833,115	$137,351,468

Capital Commitments and Sources of Funding

The Authority's commitments for various capital improvements are approximately $3.3 billion over the financial period 2019-2022. The Authority anticipates that these improvements will be funded using existing construction funds, internally-generated funds and additional borrowings. Such additional borrowings are expected to be accomplished through the issuance of additional commercial paper notes and/or the issuance of long-term fixed rate debt. Projected capital commitments during this period include those listed in the table below.

(In millions)	2019	2020	2021	2022
Communications Backbone	$ 33.9	$ 56.2	$ 10.6	$ 0.0
Sensor Deployment	$51.5	$28.2	$1.0	$1.0
Large Energy Storage (Zones D & K)	$ 15.8	$ 30.0	$15.0	$ 0.0
Moses Adirondack Transmission Line Replacement	$36.7	$135.5	$205.9	$76.7
EVolve NY	$ 34.2	$ 36.9	$ 36.9	$ 36.9
Other Strategic Initiatives	$11.9	$12.8	$2.3	$2.3
Canal Corporation	$54.7	$40.0	$40.0	$40.0
Customer Services	$212.0	$263.0	$315.0	$325.0
Other NYPA Capital	$278.5	$265.1	$308.5	$315.3
Grand Total	**$729.2**	**$867.7**	**$935.2**	**$797.2**

2019-2022 Capital Commitments by Function
(in millions)



Certification of Assumptions and Method of Estimation for Budget and Financial Plan 2019-2022 in accordance with the Comptroller's Regulation § 203.9 Certification

December 11, 2018

To the Board of Trustees
Power Authority of the State of New York

To the best of my knowledge and belief after reasonable inquiry, I, the undersigned, certify that the "Authority's Method of Estimation for Budget and Financial Plan 2019-2022" is based on reasonable assumptions and methods of estimation and that the regulations enumerated in Part 203, "Budget and Financial Plan Format, Supporting Documentation and Monitoring - Public Authorities" have been satisfied.

Joseph Kessler
Chief Operating Officer

Robert Lurie
Chief Financial Officer

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