

**ANNUAL DISCLOSURE REPORT**

**of the**

**LONG ISLAND POWER AUTHORITY**

**(FISCAL YEAR 2018)**

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## INTRODUCTION TO THE AUTHORITY AND LIPA

This Annual Disclosure Report for the year ended December 31, 2018 (together with the Appendices attached hereto, the “ADR”) is furnished by the Long Island Power Authority (the “Authority”) as required by the various Continuing Disclosure Certificates (the “Continuing Disclosure Certificates”) executed and delivered by the Authority relating to certain of its bonds. The ADR provides information relating to the Authority and its wholly-owned subsidiary, the Long Island Lighting Company (“LILCO”), which does business under the names LIPA and Power Supply Long Island (“LIPA”) as described below. The Authority, acting through LIPA, provides electric service in its Service Area (the “Service Area”) which includes Nassau County (“Nassau County”) and Suffolk County (“Suffolk County”) on Long Island (except for the Nassau County villages of Freeport and Rockville Centre and the Suffolk County village of Greenport, each of which has an individually owned municipal electric system that supplies and distributes electricity to ultimate consumers within those municipalities) and a portion of the Borough of Queens of The City of New York known as the Rockaways.

Certain of the information contained in this ADR is in addition to that required by the Continuing Disclosure Certificates. Pursuant to the terms of the Continuing Disclosure Certificates, the Authority is under no obligation to update such additional information or include it in any future annual report.

Capitalized terms used but not defined herein have the meanings given those terms in “Appendix B – Glossary of Defined Terms” attached hereto.

The Authority is a corporate municipal instrumentality and a political subdivision of the State, exercising essential governmental and public powers. The Authority was created by the State Legislature pursuant to the Long Island Power Authority Act, being Title 1-A of Article 5 (§ 1020 et seq.) of the Public Authorities Law of the State, as amended, including as amended by certain provisions of the LIPA Reform Act (defined below), (the “Act”). LIPA is a stock corporation formed and existing under the Business Corporation Law of the State.

The Authority became the provider of electric service in the Service Area on May 28, 1998 by acquiring LILCO as a wholly-owned subsidiary of the Authority through a merger. Since such acquisition, LILCO has done business under the name Long Island Lighting Company d/b/a LIPA. For the period prior to its acquisition by the Authority, LILCO was an investor-owned utility and is referred to herein as “LILCO” and, for the subsequent period after acquisition by the Authority, is referred to herein as “LIPA.”

Following its acquisition by the Authority, LIPA retained the electric transmission and distribution systems (the “T&D System”), certain agreements and contracts for power supply and transmission, an 18% ownership interest in Unit 2 of the Nine Mile Point nuclear electric generating station located in Oswego, New York (“NMP2”) and certain other assets and liabilities (for a discussion of these other assets and liabilities, see “CERTAIN OTHER MATTERS – LIPA Assets and Liabilities” in this ADR). The term “System” means the assets of the Authority and LIPA used in furnishing electric service.

The remainder of LILCO’s assets (including all of its then-existing fossil-fueled generating units) and employees, and its entire gas supply system, were transferred to certain wholly-owned subsidiaries of KeySpan Corporation. In August 2007, KeySpan Corporation was acquired by National Grid plc, a company organized under the laws of England and Wales (“National Grid plc”). Each subsidiary of KeySpan Corporation that acquired assets or employees of LILCO now does business under the name “National Grid” (each such subsidiary is referred to herein as a “National Grid Sub” and collectively the “National Grid Subs”).

### **Relationship of the Authority and LIPA**

LIPA is a State corporation and a wholly-owned subsidiary of the Authority. Pursuant to LIPA’s organizational documents, the Authority conducts and manages LIPA’s business and affairs. Accordingly, LIPA is controlled by the Authority. The Authority is governed by a Board of Trustees (the “Board”) as described herein.

The Authority and LIPA are parties to a Financing Agreement (the “Financing Agreement”) providing for their respective duties and obligations relating to the financing and operation of the retail electric business in the Service Area, which is included herein by specific cross-reference.

Pursuant to the terms of the Financing Agreement, the Authority is to issue all debt for the Authority and LIPA. This debt includes all Bonds and Subordinated Indebtedness issued and to be issued. The proceeds of all such debt are to be treated as loaned from the Authority to LIPA, which will repay such loans from the revenues it receives from its electric business. To secure the loans, LIPA has pledged all of its revenues to the Authority, which has, in turn, pledged such revenues as security for such debt.

Pursuant to the terms of the Financing Agreement, LIPA conducts the electric business in the Service Area and provides service to customers in the Service Area. The Authority and LIPA are also parties to an Administrative Services Agreement under which the Authority provides personnel, personnel-related services and other services necessary for LIPA to provide electric service in the Service Area.

### **System Operation by the Authority**

To assist the Authority (acting through LIPA) in providing electric service in the Service Area, the Authority and LIPA have generally entered into operating agreements, the purpose of which is to provide the Authority and LIPA with the operating personnel and a significant portion of the power supply resources necessary for LIPA to provide electric service in the Service Area. From 1998 through 2013, the service providers were, with some exceptions, National Grid Subs. As described below, the Authority transitioned to a business model first adopted by the Board in late 2011 and modified in 2013 in response to the LIPA Reform Act.

Below is a summary of certain of LIPA’s basic operating agreements, including certain historic and current arrangements.

#### T&D System management including, among other functions, the day-to-day operation and maintenance, customer service, billing and collection and meter reading:

From 1998 through the end of 2013, a National Grid Sub was the T&D System manager pursuant to a Management Services Agreement (the “MSA”). Commencing January 1, 2014, a wholly-owned subsidiary of Public Service Enterprise Group Incorporated (“PSEG”) dedicated to the operations of the T&D System (“PSEG Long Island”) became the service provider pursuant to the twelve-year Amended and Restated Operations Services Agreement (the “OSA”) executed in accordance with the LIPA Reform Act. PSEG Long Island is also the retail brand for electric service on Long Island.

#### Power Supply (including capacity and related energy) from the oil and gas-fired generating plants on Long Island owned by a National Grid Sub (“National Grid Generation LLC” or “GENCO”) (“GENCO Generating Facilities”):

Since 1998, GENCO has been the power supplier with respect to the GENCO Generating Facilities. The initial power supply agreement between LIPA and GENCO (the “Original PSA”) expired on May 28, 2013. LIPA and GENCO executed a Power Supply Agreement (the “PSA”) that commenced in May 2013 for a term of 15 years, which provides for the purchase of capacity and related energy from approximately 3,700 MW of on-Island generating facilities. The PSA also provides LIPA with the option to ramp down (i.e., cease purchasing capacity from) a portion of the units prior to the expiration of the PSA. In addition to the PSA with GENCO, LIPA purchases approximately 1,900 MW of capacity from generating facilities on Long Island and elsewhere under various other power supply agreements.

#### Power Supply and Fuel Management:

Effective January 1, 2015, a PSEG Long Island affiliate, PSEG Energy Resources & Trade LLC (“PSEG ER&T”), provides the power supply and fuel management services. These services were previously provided by Con Edison Energy, Inc. or a National Grid Sub.

## **The LIPA Reform Act**

The LIPA Reform Act of 2013 (the “LIPA Reform Act”) amended certain provisions of the Long Island Power Authority Act and was divided into two parts. Part A addressed matters relating to restructuring the Authority and LIPA. Part B created the Utility Debt Securitization Authority (“UDSA”) and authorized the issuance of the restructuring bonds to retire a portion of the Authority’s existing debt.

### **Restructuring of the Authority and LIPA and Relationship to PSEG Long Island**

Part A of the LIPA Reform Act established a new office within the New York State Department of Public Service (the “DPS”), which is the staff arm of the New York Public Service Commission (the “PSC”) to review and make recommendations to the Board, the Authority and/or PSEG Long Island related to rates and charges, core utility functions including capital expenditures, the methods employed by PSEG Long Island for safe and adequate service, and the emergency response plan of PSEG Long Island. Part A also gives the DPS the responsibility to investigate and mediate customer complaints. Additionally, the DPS was given the power to undertake comprehensive and regular management and operations audits. The Authority bears the costs and expenses relating to the DPS’s oversight role. Under this provision, DPS conducted and concluded its management and operations audit in June 2018, the findings of which were generally positive to neutral. LIPA and PSEG Long Island are now in the process of implementing the audit recommendations pursuant to an audit implementation plan approved by DPS and the Board. *The 2018 DPS Management and Operations Audit and the related Implementation Plan can be found on the Authority’s website (<https://www.lipower.org/about-us/contracts-reports/>) under the caption “Management and Operations Audits.”* Such information on the website is not included herein by specific cross-reference.

### **The LIPA Reform Act and the OSA**

The LIPA Reform Act required the transfer of substantial operational duties and obligations to PSEG Long Island and greater operational flexibility for PSEG Long Island to carry out its related duties. In response to the LIPA Reform Act, the OSA with PSEG Long Island was amended to address the changed relationship between the parties in the provision of electric service in LIPA’s Service Area. The resulting OSA has a base term of 12 years, expiring December 31, 2025 and provides that if PSEG Long Island achieves certain levels of performance during the first 10 years, the parties will negotiate in good faith an eight-year extension of the OSA on substantially similar terms and conditions. The LIPA Reform Act required that the DPS review the OSA and provide a recommendation to the Board prior to the Board’s vote to approve the agreement. By letter dated September 27, 2013, the Chair of the DPS notified the Board that the DPS had comprehensively reviewed the LIPA Reform Act, the proposed OSA and the management and operations audit of LIPA conducted by an independent consultant on behalf of the DPS, and based upon such review, recommended that the Trustees approve the OSA.

The LIPA Reform Act requires PSEG Long Island to prepare and maintain an emergency response plan to assure the reasonably prompt restoration of service in the case of an emergency event and establish separate responsibilities of the Authority and the service provider; submit for review to the DPS a report detailing PSEG Long Island’s planned capital expenditures; consider, consistent with maintaining system reliability, renewable generation and energy efficiency program results and options in establishing capital plans; and submit to the DPS for review, data, information and reports on PSEG Long Island’s actual performance related to the metrics in the OSA, including the Authority’s evaluation thereof, prior to the Authority’s determination of PSEG Long Island’s annual incentive compensation.

The LIPA Reform Act requires that staffing at the Authority be kept at levels only necessary to ensure that the Authority can meet its obligations with respect to its bonds and notes and all applicable statutes and contracts, and to oversee the activities of PSEG Long Island. The PSEG Long Island management company consists of approximately 13 employees at the director level and higher. The PSEG Long Island service company consists of approximately 2,500 PSEG Long Island employees, which includes a substantial majority of incumbents from the National Grid workforce, as well as new hires. Further information about PSEG and PSEG Long Island can be found at <http://www.psegliny.com>. No information on that website is included herein by specific cross-reference.

*The following is a summary of certain provisions of the OSA. This summary is not complete and reference is made to the OSA for full and complete statements of such agreement and all provisions. The OSA has been filed*

with the Municipal Securities Rulemaking Board's ("MSRB") EMMA and is included by specific cross-reference herein. For convenience, a copy of the OSA can also be found on the Authority's website (<https://www.lipower.org/about-us/contracts-reports/>) under the caption "Major Contracts."

*Compensation.* The OSA provides for an annual fixed management services fee (approximately \$64 million in 2018) and an annual incentive compensation pool (approximately \$9.7 million in 2018), both indexed for inflation. The incentive compensation pool is earned based on favorable performance relative to Performance Metrics. Generally, costs and expenses (with no mark-up or profit) incurred by PSEG Long Island while providing operations services are treated as Pass-Through Expenditures under the OSA. In 2018, PSEG Long Island earned the full annual incentive compensation of approximately \$9.7 million.

*Performance Metrics.* The Performance Metrics are designed to achieve or maintain LIPA's desired performance levels, generally first quartile performance as determined by agreed industry peer benchmarks. Performance Metrics are agreed upon by LIPA and PSEG Long Island annually. Performance Metrics are structured both to maintain good performance and improve poor performance. To date, PSEG Long Island has completed five years of T&D System operations and made substantial progress toward maintaining or achieving the Performance Metrics each year, as well as substantially improved LIPA's standing in the J.D. Power Residential and Business customer satisfaction surveys.

*Operations Services.* PSEG Long Island must provide operations services generally as an independent contractor for the T&D System on behalf of LIPA in accordance with the standards set forth in the OSA. Under the OSA, except for certain rights and responsibilities reserved to LIPA, PSEG Long Island assumes and undertakes the rights and responsibilities for management, operation and maintenance of the T&D System and the establishment of programs and procedures with respect thereto, including: all electric transmission, distribution and load servicing activities for the safe and reliable operation and maintenance of the T&D System; day-to-day operation of the T&D System; engineering activities; preparation of recommended capital plan; preparation of long- and short-range planning analyses and forecasts; customer services; finance, accounting, budgeting, longer-term financial forecasting and treasury operations related to the T&D System; and other general activities such as information technology, human resources, procurement, implementation of emergency response and reporting. Under the OSA, LIPA has policy making and oversight responsibilities and obligations for the operation and maintenance of the T&D System consistent with the LIPA Reform Act. LIPA's specific rights and responsibilities with respect to the T&D System include: the right to determine all T&D System rates and charges; the right to review and approve the consolidated budget; responsibility for financing the business and operations of the Authority and LIPA; compliance with any financing documents and administration of debt service for all debt of the Authority and LIPA; and overall responsibility for the Authority's and LIPA's legal matters, including reporting and related legal compliance. LIPA and PSEG Long Island mutually agree to Performance Metrics described above and reasonable budgets to achieve those metrics.

*Termination of OSA.* The OSA contains customary events of default, including bankruptcy, payment failures and failure to perform material obligations under the agreement, as well as cure rights. The OSA may be terminated upon an event of default that has not been timely cured. If a bankruptcy-related event of default occurs under the OSA, the OSA terminates immediately without further action by the non-defaulting party. For payment defaults or, in the case of PSEG Long Island and certain of its affiliates only, credit support-related defaults, the non-defaulting party may terminate upon not less than fifteen Business Days' written notice to the other party. For other events of default, the non-defaulting party must generally provide not less than ninety Business Days' written notice prior to termination. Immediately upon the expiration or any earlier termination of the OSA, the PSEG Long Island service company will transfer the membership interests in the PSEG Long Island service company and all corporate books and records to LIPA or, at LIPA's direction, its designee at no cost to LIPA or its designee. LIPA and PSEG Long Island will mutually agree upon such instruments, agreements and other documents as may be reasonably necessary to effect such transfer.

*Additional LIPA Termination Rights.* LIPA may also terminate the OSA at any time upon not less than six months' notice in the event (i) the T&D System is sold, transferred or assigned, in whole or in part, to a federal, state or municipal governmental entity or to a private entity (a "LIPA Privatization") or (ii) LIPA has determined to operate and maintain the T&D System with its own employees (a "LIPA Municipalization"). In addition, if a Change of Control (as defined in the OSA) of PSEG Long Island occurs or certain affiliated entities, LIPA may terminate the OSA upon not less than thirty days' notice. LIPA also has the additional right to terminate the OSA if PSEG Long

Island fails to satisfy either the major storm performance metric or the minimum performance level metric in the then-current contract year and any of the preceding two (2) contract years upon not less than six months' prior written notice. If LIPA exercises the right to terminate the OSA, it must set a termination date which cannot exceed 12 months following the date of such notice.

*Additional Service Provider Termination Rights.* Under the OSA, PSEG Long Island may terminate the agreement in the event of either a (i) LIPA Privatization, (ii) LIPA Municipalization or (iii) Change in Regulatory Law (as defined in the OSA). In the event of a termination of the OSA by PSEG Long Island as a result of a LIPA Privatization, the termination date would be the closing date of the sale, transfer or assignment of the T&D System. In the event of a termination of the OSA by PSEG Long Island by reason of a LIPA Municipalization, the termination date would be the effective date of LIPA's employment of the T&D System operating and maintenance personnel or LIPA's acquisition of PSEG Long Island service company, whichever first occurs. PSEG Long Island is required to provide LIPA with no less than six (6) months' prior written notice of termination by reason of a LIPA Privatization or LIPA Municipalization unless PSEG Long Island receives less than six (6) months' notice from LIPA of such event. If PSEG Long Island exercises its right to terminate the OSA by reason of a Change in Regulatory Law the termination notice period would generally extend for 12 or 14 months. In the case of a Change in Regulatory Law that subjects PSEG Long Island (or any of its affiliates that provides Operation Services under the OSA) to rate or other substantive regulation by DPS or any other state utility commission, the OSA will automatically terminate without notice or further action of the Parties one (1) day prior to the effective date of such Change in Regulatory Law, unless PSEG Long Island agrees in writing to waive its termination right relating thereto. Under the OSA, LIPA has the option to extend the effective date of any termination by reason of Change in Regulatory Law on a month to month basis for up to a maximum of 6 months upon payment of an extension fee calculated in accordance with the OSA. In addition, in the case of a termination of the OSA by PSEG Long Island by reason of a Change in Regulatory Law, the OSA permits LIPA to submit to arbitration the question of whether a delay in the termination of the OSA would be in the public interest and fair and equitable to the LIPA and PSEG Long Island, and should, therefore, be permitted.

*Service Provider as LIPA's Agent.* The OSA designates PSEG Long Island as LIPA's agent to enter into purchase, rental and other contracts on behalf of and for the account of LIPA to properly operate and maintain the T&D System and to maintain the records of LIPA, and to make such additions and extensions to the T&D System and to enter into certain customer-related contracts under LIPA's tariff, as appropriate. The designation as agent enhances the financial benefits and relationship between the parties under the agreement, including the ability to achieve certain sales and use tax savings.

*DPS Long Island and the Three-Year Rate Plan.* In accordance with the LIPA Reform Act, the OSA established a process for proceedings, including a statutorily mandated three-year rate plan for the 2016-2018 period (the "Three-Year Rate Plan"), and rate proposals that seek to increase rates above 2.5% of aggregate revenues annually, for review by the DPS and recommendation to the Authority's Trustees. The Authority does not expect to submit a rate proposal that would increase the rates in excess of 2.5% of aggregate revenues in 2019 or 2020. As provided in the LIPA Reform Act, the OSA required that PSEG Long Island prepare a preliminary Three-Year Rate Plan including information supplied by LIPA, designed to ensure that LIPA and PSEG Long Island provide safe and adequate transmission and distribution service in the service territory at rates which are (i) at the lowest level consistent with sound fiscal operating practices and (ii) sufficient to generate revenues to satisfy LIPA's obligations to its bondholders, lenders and other creditors and contract counterparties including PSEG Long Island. The OSA specifically acknowledges the Board's sole right to set final and interim rates. See "RATES AND CHARGES – Authority to Set Electric Rates" below for more information about process.

*DPS Rate Proceeding and Budgeting.* The OSA provides that in any DPS rate proceeding (i.e., related to the increases over 2.5% of annual revenues or otherwise as described above), LIPA will provide evidentiary and other support and submit its views regarding the LIPA portion of the rate plan, and PSEG Long Island will be responsible for the rest of the rate plan, and both parties may submit their own views on the filing. If the DPS proposes a draft recommendation to either party, the parties must work together to determine if the proposed recommendation is consistent with the OSA and LIPA's statutory obligations. If the parties cannot agree on such a conclusion, but the recommendation is presented to the Trustees for approval, PSEG Long Island may present its views about the recommendation to the Trustees at any Board meeting prior to a vote. Upon receipt of a final recommendation from the DPS, the parties have 21 days to negotiate and finalize an updated budget, during which time the Board would not take final action on the DPS recommendation unless necessary to comply with bond covenants or applicable law.

If agreement on the budget is not reached within 21 days, then the parties would submit the matter for resolution through expedited binding arbitration.

*Customer Rate Changes.* The OSA allows either party to propose to the other, a rate change deemed necessary, upon the same basis as stated above. Following negotiations, PSEG Long Island will prepare a proposal within 30 days for LIPA's review and within 30 days thereafter, the parties will engage in good faith discussions to agree on the rate change proposal. Following this process, the Authority can implement a change in rates or charges provided it is consistent with the OSA and the LIPA Reform Act.

*Voluntary DPS Rate Filing.* For any rate filing permitted, but not required under the LIPA Reform Act, the OSA sets forth that the process described above will be followed for a DPS proceeding.

### **The Securitization Authority and Securitization Transactions**

Part B of the LIPA Reform Act, also referred to herein as the Securitization Law, created UDSA and authorized the issuance of UDSA bonds to retire a portion of the Authority's existing debt. The Securitization Law authorizes the Authority to adopt financing orders that create restructuring property and authorize the issuance of restructuring bonds. The financing orders are irrevocable as the time for any appeal to such financing orders has lapsed. The Securitization Law requires that the proceeds of the restructuring bonds be used by UDSA to purchase restructuring property created by a financing order from the Authority and to pay or fund upfront financing costs. It also requires that the Authority use the proceeds of the restructuring bonds it receives from its sale of the restructuring property to UDSA only to pay approved restructuring costs, which include the costs of repurchasing, redeeming, repaying or defeasing certain of the Authority's outstanding indebtedness and upfront financing costs, and, if funds remain after the approved restructuring costs are paid, to refund or credit to consumers any such surplus, to the extent practical. As required by the LIPA Reform Act and each financing order, each restructuring charge will be adjusted at least annually and if determined to be necessary, semiannually or more frequently, to ensure that the expected collection of the restructuring charge is adequate to timely pay all scheduled payments of principal and interest on the related restructuring bonds and all ongoing financing costs when due.

The LIPA Reform Act mandates that the restructuring charges are irrevocable, non-bypassable consumption-based charges. "Non-bypassable" means that the restructuring charges will be collected from customers, as long as such customer is connected to the T&D System and is taking electric delivery service in the Service Area, even if such customer also produces some of its own electricity or purchases electric generation services from a provider of electric generation services who is not the owner of the T&D System Assets and even if the T&D System Assets are no longer owned by LIPA. Certain customers that self-generate eligible renewable power will only pay restructuring charges based upon their "net-billed" consumption. The obligation of customers to pay the restructuring charges is not subject to any right of set-off in connection with the bankruptcy of LIPA or any other entity.

A restructuring charge is a Transition Charge (defined herein) for purposes of the Resolution and amounts collected in respect thereof are not Revenues subject to the lien of the Resolution or the Subordinated Resolution. A restructuring charge can only pay debt service on the related restructuring bonds and related costs. All payments from or on behalf of customers, including all Revenues and Transition Charges, are initially deposited into an allocation account maintained by the Authority and allocated daily by the Authority among Revenues transferred to the Revenue Fund and the restructuring charges transferred to one of the collection accounts established under indentures relating to the UDSA restructuring bonds. UDSA issued approximately \$4.5 billion of restructuring bonds in several series effectively exhausting UDSA's ability to issue restructuring bonds under the amended Securitization Law. Restructuring bonds are not secured by the Trust Estate described herein. See "SECURITY AND SOURCES OF PAYMENT FOR THE BONDS – Payment of Revenues Pursuant to Financing Agreement." Restructuring bonds are not obligations of the Authority, LIPA, PSEG Long Island or any of their affiliates and bonds and other obligations issued or incurred by the Authority and LIPA are not obligations of UDSA.

Restructuring charges are collected by LIPA, as the initial Servicer, under servicing agreements between LIPA and UDSA. As Servicer, LIPA is responsible for monitoring the collateral securing the UDSA bonds, taking all necessary action in connection with adjustments to the restructuring charges and certain reporting requirements. However, in its role as T&D System manager under the OSA, PSEG Long Island performs several functions otherwise provided by LIPA including billing and collecting the restructuring charges from customers, meter reading and

forecasting. For each issuance of restructuring bonds, UDSA and LIPA also signed an Administration Agreement under which LIPA, acting as Administrator, performs certain administrative and other duties on behalf of UDSA.

### **The Power Supply Agreement**

In 2012, the Authority and National Grid signed the PSA to provide for the continued purchase of generation (including capacity and related energy) from the fossil-fired GENCO Generating Facilities for a maximum term of 15 years commencing in May 2013. The PSA provides approximately 3,700 MW of on-Island capacity for the term of the agreement and provides LIPA with the option to ramp down (i.e., cease purchasing capacity from) a portion of the PSA units. LIPA can purchase energy on a least-cost basis from all available on-Island and off-Island sources, consistent with existing transmission interconnection and T&D System limitations. The PSA also provides for certain penalties related to guaranteed performance levels by GENCO, including unforced capacity (“UCAP”) (i.e., capacity adjusted for forced outages) and efficiency levels (heat rate) of the generating facilities. See “THE SYSTEM – Power Supply” below. *This summary of the PSA is not complete and reference is made to the PSA for full and complete statements of such agreement and all provisions. The PSA has been filed with the MSRB’s EMMA and is included by specific cross-reference herein. For convenience, a copy of the PSA can also be found on the Authority’s website (<https://www.lipower.org/about-us/contracts-reports/>) under the caption “Major Contracts.”*

### **2018 FINANCIAL INFORMATION**

The Authority’s consolidated financial statements and required supplementary information are attached hereto as Appendix A.

### **RECENT DEVELOPMENTS**

#### **Reforming the Energy Vision, the Clean Energy Standard, the Zero-Emissions Credit Requirement and Climate Leadership and Climate Protection Act**

The PSC commenced its Reforming the Energy Vision (or “REV”) initiative to transform the State’s energy industry and regulatory practices in April 2014. Reports and additional REV information are available on the DPS website at <http://www.dps.ny.gov/>. Information on that website is not included herein by specific cross-reference.

In June 2015, the New York State Energy Planning Board released its 2015 State Energy Plan (the “SEP”). The SEP coordinates state agencies that impact energy policy to advance the REV strategy. The SEP reflects the following goals for the State to meet by 2030: (i) a 40 percent reduction in greenhouse gas emissions from 1990 levels; (ii) 50 percent of electric generation from renewable energy sources; and (iii) a 23 percent decrease in energy consumption in buildings from 2012 levels. Also, the State has announced goals to reduce greenhouse gas emissions 80 percent below 1990 levels by 2050. In January 2016, the PSC expanded the scope of its REV proceeding to include consideration of a clean energy standard (“CES”). In August 2016, the PSC issued an Order Adopting a Clean Energy Standard (the “CES Order”). The PSC has also issued subsequent CES implementation orders. The CES is divided into a Renewable Energy Standard (“RES”) and a Zero-Emissions Credit (“ZEC”) requirement. In the CES Order, the PSC requires each load serving entity (“LSE”) within its jurisdiction to serve its retail customers (the CES Order assumes Authority participation as well) by procuring new renewable resources, evidenced by the procurement of qualifying Renewable Energy Credits (“RECs”) at incrementally larger percentages for the years 2017 through 2030, with sufficient lead time for the load serving entities to incorporate the changes into their planning processes. The load serving entities can meet their obligations by purchasing RECs from the New York State Energy Research and Development Authority (“NYSERDA”), by purchasing qualified RECs from other sources, or by making alternative compliance payments to NYSERDA. Resources eligible to produce RECs will be resources that came into operation after January 1, 2015, and that meet the eligibility criteria set forth in the CES Order.

The Board adopted a policy on Resource Planning, Energy Efficiency, and Renewable Energy, which can be found on the website at <https://www.lipower.org/mission/>, and that directs staff to voluntarily meet the CES Order. Information on that website is not included herein by specific cross-reference.

The PSC also proposed that each LSE, including the Authority, preserve the environmental values or attributes of qualified zero-emissions nuclear-powered electric generating facilities by purchasing an amount of ZECs in proportion to the electric load energy served by the LSE in relation to the total electric load energy served by all LSEs in the State. At its September 21, 2016 meeting, the Authority Trustees authorized an agreement with NYSERDA for the purchase of ZECs and to receive its share of such revenues for its ownership interest in NMP2. The Authority's staff expects that the cost to the Authority for its purchase of ZECs will be approximately \$50 million for the full calendar year 2019. Costs will increase with the projected social cost of carbon as determined by the State and the federal government or decrease with forecasted wholesale market prices, as outlined in the CES Order. The Authority and PSEG Long Island are also participating in the State's Offshore Wind Master Plan, which involves efforts to license and procure sufficient offshore wind resources to meet the State's goal of 9,000 MW of offshore wind by 2035. As a significant portion of the planned offshore wind resources will likely be interconnected to the T&D System, studies are underway to examine the need for transmission reinforcements and flexible resources (e.g., peaking plants and energy storage) to enable the reliable and cost-effective integration of offshore wind into the local and regional power grid.

The Climate Leadership and Community Protection Act of 2019 (the "CLCPA") codifies many of the State's goals. The CLCPA will impact the Authority and LIPA and is described in more detail under the sub-heading "Climate Leadership and Climate Protection Act." Those goals include 6,000 MW of solar generation by 2025 and 3,000 MW of storage capacity by 2030.

The Authority's tariff provides for net metering of certain residential and nonresidential customer-generators of renewable power, such as solar, wind, farm waste, micro-combined heat and power, fuel cells, micro-hydroelectric and hybrids. The net meters measure only the net electricity provided to or by the customer-generator using the T&D System. On March 9, 2017, the PSC adopted the first phase of its net metering successor plan (*see* Order on Net Energy Metering Transition, Phase One of Value of Distributed Energy Resources, And Related Matters, New York Public Service Commission Case 15-E-0751 (the "Phase One Order")), which provides a new mechanism for utility compensation of certain distributed energy resources interconnected after March 9, 2017. Under the Phase One Order, large commercial customers will be compensated with a value stack comprising values for energy, capacity, environmental, and demand reduction costs. Notwithstanding the fact that the Authority is not subject to PSC jurisdiction, the Authority implemented the PSC's net metering successor plan within the Service Area, including value stack compensation for large commercial customers, on January 1, 2018. The Authority also implemented net metering grandfathering provisions, which provide that (i) large commercial customers whose net metering eligible generation systems were interconnected or substantially interconnected by May 1, 2018 will remain net metering eligible for the life of the customer's system and (ii) eligible mass market customers who become substantially interconnected after January 1, 2018 and before a successor compensation is put in place will be eligible for the existing net metering framework, but with a 20-year sunset. As of the date hereof, the Authority has net metering arrangements with eligible customer-generators in the Service Area equal to approximately 6.7% of the Authority's reference year (2005) peak load.

While the Authority is not a regulated utility subject to the PSC's jurisdiction, it has been and expects to continue to monitor the REV proceeding closely and review and evaluate orders put forth by the PSC and implemented by the investor-owned utilities to develop and recommend a plan of action by the Authority consistent with REV goals and objectives. The Authority cannot predict the outcome of the REV proceeding or related proceedings or their impact on the business, operations or financial condition of the Authority.

### **Integrated Resource Plan and Repowering Studies**

PSEG Long Island conducted an Integrated Resource Plan ("IRP") and Repowering Study of LIPA's electric resource needs through 2035. The IRP was issued in 2017, reviewed by LIPA and an independent consulting firm, the Brattle Group, and issued for public comment. The IRP concluded there would be no need for additional baseload power plants through 2030. Accordingly, Authority staff recommended to the LIPA Board of Trustees (the "LIPA Board") in July 2017 that LIPA not contract for new baseload combined cycle power plants or repower existing steam plants. The Brattle Group provided an independent second opinion of PSEG Long Island's reliability planning criteria and the need for proposals for certain combined cycle plants (Caithness II and the repowering of the Barrett and Port Jefferson generating stations). The DPS also participated in the Brattle Group review and provided a recommendation to LIPA.

PSEG Long Island projects that peak demand will decline by approximately 400 MW by 2030, primarily as a result of greater adoption of energy efficiency and distributed energy resources such as rooftop solar and is consistent with state and national trends. At its July 26, 2017 meeting, the Board adopted a Policy on Resource Planning, Energy Efficiency and Renewable Energy that requires LIPA to meet its share of the State's renewable energy goals. As described in more detail below under " – Climate Leadership and Climate Protection Act," a number of more demanding State goals have been introduced.

### **Climate Leadership and Climate Protection Act**

Governor Cuomo in his 2019 State of the State Address introduced the Green New Deal plan. That plan has been largely incorporated into the CLCPA, which was passed by the State Legislature on June 19, 2019 and is expected to be signed by the Governor shortly. It identifies the following goals: 70% of NY State's electric energy requirements to be provided by renewable energy by 2030; 100% of the State's electric energy requirements to be provided by clean energy by 2040; and, an 80% reduction in greenhouse gas emissions by 2050. To advance the achievement of these goals, certain targets have been established by the State; specifically: 9,000 MW of off-shore wind by 2035; 6,000 MW of distributed solar by 2025, and 3,000 MW of energy storage by 2030.

The full impact of the CLCPA on many segments of the economy will be detailed in regulations over the coming year. The implementation of CLCPA will fundamentally change the existing generation supply portfolio for the State and Long Island. Pursuant to, among other things, the IRP, the Authority's decision to forego new fossil-fuel baseload generation and its procurement of the State's first offshore wind farm, LIPA is positioned to address the State's renewable energy goals through 2024. However, the Authority cannot predict, with specificity at this time, the various effects these developments will have on the business, operations and financial condition of the Authority or LIPA.

### **Suffolk County Payments in Lieu of Taxes**

The Authority is exempt from payment of real property taxes. However, by statute, LIPA makes payments in lieu of taxes ("PILOTS") for each parcel of real property it acquired from LILCO. Beginning in calendar year 2015, the LIPA Reform Act capped LIPA's PILOT payments to no more than 2% higher than the prior calendar year. In 2017, the Authority received notices from Suffolk County claiming to enforce liens against certain of its properties for allegedly unpaid real estate taxes. The Authority has paid the full amount of PILOTS it is authorized by law to pay. Furthermore, Suffolk County lacks legal authority to enforce a tax lien on the Authority's property. The Authority has filed a legal action to negate any attempt by Suffolk County to enforce the alleged tax liens. There is an injunction in place which prevents Suffolk County from enforcing its liens while litigation is pending.

### **Power Plant Property Tax Litigation**

The Authority has filed tax certiorari challenges against the County of Nassau, the Town of Huntington, the Town of Brookhaven and the Village of Port Jefferson related to certain of the power plants subject to the PSA. LIPA currently reimburses National Grid for the property taxes assessed against the plants by the taxing jurisdictions. The Authority is currently pursuing property tax challenges in Nassau County on the E.F. Barrett Power Station in Island Park and the Glenwood Generating Station in Glenwood Landing, and in Suffolk County on the Northport Power Station. In December 2018, the Authority entered into settlements with the Town of Brookhaven and the Village of Port Jefferson for the Port Jefferson Power Station that will reduce its annual property tax payments to 50% of current levels by 2027. Relatedly, a number of municipalities and school districts that host the subject power plants have filed lawsuits against the Authority claiming that certain provisions of the Original PSA and the PSA prohibit the Authority from filing tax certiorari challenges for the generating plants. All parties filed motions for summary judgment in those proceedings. In August 2018, the Court ruled on those motions in LIPA's favor finding that LIPA has the authority to file tax certiorari challenges on the plants. That decision is currently on appeal.

## **DERIVATIVES AND HEDGE ACTIVITIES**

The Authority uses financial derivative instruments and physical hedges to manage the impact of changes in electric prices, fuel costs and interest rates on its electric rates.

## Commodity Hedging

The Authority is exposed to volatile energy commodity prices in the normal conduct of its operations. These costs are recovered from the Authority's customers through the Power Supply Charge on customer bills, which may change monthly in response to actual and projected fuel and purchased power costs. While costs vary with supply and demand for energy related resources (which include seasonal, weather, transportation, natural disaster, and other influences), the Authority's customers prefer greater stability in electric rates from month-to-month. The hedging of certain components of power supply costs reduces the volatility of the Power Supply Charge.

The Authority manages the volatility of the Power Supply Charge using financial derivative and physical hedges according to a defined risk management program and hedging plan overseen by an Executive Risk Management Committee or ERM. The ERM comprises the Chief Financial Officer and other members of Authority management. The Authority has authorized PSEG ER&T to implement this risk management plan as the Authority's agent. The power supply commodity hedging program identifies price and volume targets for power supply commodities with the goals of stable and reasonable fuel and purchased power costs. As of March 31, 2019, the Authority posted \$11.1 million cash collateral to the Authority's clearing broker for its power supply commodity hedge positions. The mark-to-market value as of March 31, 2019 for the Authority's power supply commodity hedge positions was positive \$13.0 million.

## Interest Rate Hedging

The Authority manages a portion of its interest rate risk with derivative instruments. As of March 31, 2019, the Authority had seven interest rate exchange agreements with a total notional amount of \$1.86 billion relating to its outstanding indebtedness. The Authority monitors its interest rate derivative exposure regularly. The Authority is subject to collateral posting requirements on certain of its interest rate derivatives depending on the ratings of the Authority and, in certain cases, the swap insurer Assured Guaranty Municipal Corp. (formerly "FSA") ("Assured"). The Authority has not had to post collateral for its interest rate derivatives. In the event that the Authority were required to post collateral, the Authority may provide alternative credit support in lieu of posting collateral and/or executing collateral documentation.

For one of the Authority's swaps (with a mark-to-market at March 31, 2019 of negative \$3.88 million) the Authority must collateralize the negative mark-to-market if it exceeds a \$30 million threshold following a downgrade of the Authority's senior lien debt to below Baa3, BBB- or BBB- by Moody's, S&P, or Fitch, respectively, and fully collateralize the negative mark-to-market following a downgrade of the Authority's senior lien debt below Baa3, BBB- or BBB- by Moody's, S&P, or Fitch, respectively. A downgrade of the Authority's senior lien debt below Baa2, BBB or BBB by Moody's, S&P, or Fitch, respectively, may also require the Authority to execute collateral documentation related to a separate swap (with a mark-to-market at March 31, 2019 of negative \$1.94 million). Additionally, one of the Authority's swaps with existing collateral documentation (mark-to-market at March 31, 2019 of negative \$1.94 million) requires the Authority to collateralize in the event of a downgrade of the Authority's senior lien debt to below Baa2 or BBB from either Moody's or S&P, respectively.

Regarding a swap insured by Assured (with a mark-to-market at March 31, 2019 of negative \$181.83 million), the Authority may have to execute collateral documentation if both the insurer's rating falls below A2 by Moody's and A by S&P, *and* the Authority's senior lien debt rating falls below A3 by Moody's and A- by S&P. For the other swap insured by Assured, the collateral posting is affected only by the Authority's ratings as discussed in the preceding paragraph.

The swap counterparties can terminate the swaps only following certain events related to the Authority, including payment defaults or other uncured events of default, bankruptcy, insolvency, bond-related events, or credit rating downgrades of the Authority and/or the swap insurer (if applicable). Under the majority of the Authority's swap agreements, the counterparties do not have the right to terminate until one of the Authority's senior lien credit ratings is downgraded below investment grade. Some counterparties may also terminate if, following a downgrade of the Authority and/or Assured below certain levels, the Authority does not provide credit support, post collateral or execute collateral documentation.

Under GASB 53, *Accounting and Reporting for Derivative Instruments*, and GASB 72, *Fair Value Measurement and Application*, the Authority records its derivatives at fair value. For a further discussion of these matters, and for a summary of certain interest rate exchange agreements, see Note 8 of Notes to Basic Financial Statements.

On July 27, 2017, the Financial Conduct Authority announced that it will no longer persuade or compel banks to submit rates for the calculation of the London Interbank Offered Rate Rates (“LIBOR”) after 2021 (the “FCA Announcement”). Certain of the Authority’s swaps use a LIBOR-based rate as a reference rate for determining the interest rate and/or other payment obligations. It is not possible to predict the effect of the FCA Announcement, any changes in the methods pursuant to which LIBOR rates are determined, or any other reforms to LIBOR that may be enacted, any of which may adversely affect the determination of LIBOR rates or result in the phasing out of LIBOR as a reference rate. Any such effects could cause a sudden or prolonged increase or decrease in reported LIBOR rates, or result in the replacement of LIBOR with other reference rates and could have a negative impact on the market value of the Authority’s interest rate derivative and payment obligations. In the United States, the Board of Governors of the Federal Reserve System established the Alternative Reference Rates Committee (“ARRC”) has developed the Secured Overnight Financing Rate (“SOFR”) as an alternative risk-free rate, and subsequently identified SOFR as a possible replacement for LIBOR. SOFR is a broad measure of the cost of borrowing U.S. Treasury securities overnight. ARRC and market participants are currently in the process of identifying methodology for which LIBOR-based instruments may be transitioned into using SOFR, in the event LIBOR is no longer published or utilized. It is currently unclear if SOFR will be the replacement for LIBOR and what the impact, if any, of such a transition could be on the Authority and its swaps.

## **RATES AND CHARGES**

### **The Act and the Rate Covenant**

The Act requires that any bond resolution of the Authority contain a covenant that it will at all times maintain rates, fees or charges sufficient to pay the costs of operation and maintenance of facilities owned or operated by the Authority; payments in lieu of taxes; renewals, replacements and capital additions; the principal of and interest on any obligations issued pursuant to such resolution as the same become due and payable; and to establish or maintain any reserves or other funds or accounts required or established by or pursuant to the terms of such resolution.

### **Rate Tariffs and Adjustments**

LIPA’s base retail electric rates generally reflect traditional rate designs and include fixed customer charges for all customer classes, seasonal energy rates for all customer classes except street lighting, and seasonally differentiated demand charges for non-residential customer classes (greater than 7 kW). Economic development and load retention incentives are provided to a small number of commercial customers. Miscellaneous service charges, pole attachment charges, and wireless rental charges are also assessed monthly. Besides the base delivery service charges, the Authority’s electric rates include a Power Supply Charge (described below), a PILOT payments recovery rider (described below), a rider providing for the recovery of the Suffolk Property Tax Settlement, a Distributed Energy Resources (“DER”) Charge to recover the costs of LIPA’s customer-side efficiency programs, a Revenue Decoupling Mechanism (described below), a Delivery Service Adjustment Charge (described below) and the State Assessment Charge to recover the cost of the Temporary State Energy and Utility Conservation Assessment and Department of Public Service Assessment (authorized by Public Service Law Section 18-a and the LIPA Reform Act).

### **Power Supply Charge**

The Power Supply Charge recovers LIPA’s fuel and purchased power costs. The Power Supply Charge is updated monthly which is consistent with the process used by other major State electric utilities. The Power Supply Charge also recovers the costs associated with LIPA’s compliance with the State’s CES, including costs incurred in complying with REC and ZEC requirements, and may recover costs associated with LIPA’s compliance with the CLCPA.

## **PILOTs**

The Act also requires the Authority to make payments in lieu of taxes, i.e., PILOTs, related to revenues and to property taxes. The Authority makes payments in lieu of taxes to municipalities and school districts on Authority owned property equal to the property taxes that would have been received by each such jurisdiction from LILCO if the acquisition by the Authority had not occurred. Part A of the LIPA Reform Act limits the increase in PILOTs assessed by municipalities on Authority owned facilities to no more than 2% per calendar year, beginning in 2015, which is significantly less than the 6.6% rate of growth of property-based PILOTs over the 10 years prior to the LIPA Reform Act. Such PILOTs are recovered in the Authority's base rates, which are adjusted annually for the actual amount of anticipated PILOT payments on Authority owned property. Additionally, property tax expense reimbursed to National Grid related to the GENCO units, and property taxes in all other power purchase agreements, are recovered in the Power Supply Charge.

The Authority also makes PILOTs for certain State taxes (including gross receipts taxes) and local taxes (including transit station maintenance surcharges charged by the Metropolitan Transportation Authority of New York) which would otherwise have been imposed on LILCO. The PILOT payments recovery rider allows the Authority to recover PILOTs representing these gross receipts taxes and surcharges.

## **Restructuring Charges**

The Authority's bills also recover the restructuring charges owed by the Authority's customers to UDSA. Restructuring charges secure only the restructuring bonds and any adjustments thereto are not subject to the below-described DPS review. Restructuring charges are not subject to the lien of the Resolution or Subordinated General Resolution. In addition, the UDSA restructuring bonds are not obligations of the Authority, LIPA, PSEG Long Island or any of their affiliates and bonds and other obligations issued or incurred by the Authority and LIPA are not obligations of UDSA.

## **Authority to Set Electric Rates**

The Board remains empowered to set rates for electric service in the Service Area subject only to review and recommendation by the DPS under certain conditions. The LIPA Reform Act mandated that the Authority and PSEG Long Island submit to the DPS a three-year rate proposal for rates and charges that would take effect on or after January 1, 2016. The Board retains final rate-setting power to accept or reject any particular DPS recommendation associated with a rate proposal if the Board determines in its discretion the DPS recommendation is inconsistent with the Authority's sound fiscal operating practices, any existing contractual or operating obligations, or the provision of safe and adequate service.

On January 30, 2015, a Three-Year Rate Plan for the period 2016-2018 was submitted by PSEG Long Island and the Authority for review by the DPS. On September 28, 2015, the DPS submitted its rate recommendation to the Board (the "Recommendation"). Documents relating to the rate plan filing can be found at the DPS's website ([www.dps.ny.gov](http://www.dps.ny.gov)) under PSEG Long Island Electric Rate Case (Matter Number: 15-00262) at: <http://documents.dps.ny.gov/public/MatterManagement/CaseMaster.aspx?MatterSeq=47329&MNO=15-00262>. In addition, certain information relating to the rate plan filing can be found on the Authority's website ([www.lipower.org](http://www.lipower.org)) at: <http://www.lipower.org/investors>. Information on those websites is not included herein by specific cross-reference.

The DPS recommended that the Authority set rates designed to increase revenues by \$30.4 million in 2016, \$77.6 million in 2017, and \$79.0 million in 2018, respectively, which rates represent a cumulative revenue requirement increase of \$325.4 million or 5.0%. At those proposed levels, the Authority's overall electric revenues, including power supply costs, increased by approximately 0.8%, 2.1%, and 2.1%, respectively. The Board approved the recommendation.

After the statutorily-mandated Three-Year Rate Plan, the Authority and PSEG Long Island elected to recommend to the Board a budget for 2019 containing a rate proposal that remained below the threshold for DPS

review. The Authority does not expect to submit a rate proposal that would increase the rates in excess of 2.5% of aggregate revenues in 2019 or in 2020.

The Three-Year Rate Plan adopted the “Public Power Model” of rate-setting, which makes use of the debt service coverage method in determining revenue requirements. For the Authority this entailed fixed obligation coverage targets (including capitalized leases) on Authority issued debt of 1.20x, 1.30x, 1.40x in 2016, 2017, and 2018 (and 1.45x in 2019, after the Three-Year Rate Plan). The fixed obligation coverage for 2016, 2017 and 2018 was approximately 1.26x, 1.33x and 1.49x, respectively. With UDSA’s restructuring bonds included, those coverage ratio targets are at least 1.15x, 1.20x, and 1.25x in 2016, 2017, and 2018, respectively. When UDSA’s restructuring bonds are included, the fixed obligation coverage for 2016, 2017 and 2018 was approximately 1.19x, 1.22x, and 1.29x, respectively. Depreciation expense, amortization of the acquisition adjustment and of other regulatory assets, and the difference between the accrual expense and actual required cash contributions to PSEG Long Island OPEBs, are non-cash expenses excluded from the Authority’s methodology for coverage calculation. The Three-Year Rate Plan also included a credit rating target to raise the Authority’s credit ratings to A2 by Moody’s, A by S&P, and A by Fitch over five years. Additionally, the filing sought through increasing fixed obligation coverage targets to bring down the level of debt funding as a percentage of the annual capital program to 64% or less. The Authority has adopted a policy on Debt and Credit Markets that codifies these targets, which can be found on its website at <https://www.lipower.org/mission/>. Such information on the website is not included herein by specific cross-reference. Achieving these financial targets involves risks and uncertainties, and therefore the Authority’s actual results may differ from the targets.

The DPS’ Three-Year Rate Plan recommendation also included a permanent mechanism (the “Delivery Service Adjustment”) to reconcile certain specified projected costs to actual costs in each year. The Delivery Service Adjustment provides cost recovery for certain items that can vary significantly due to external factors, which items include, among others: debt service (variances in interest rates, capital expenditures and savings derived from UDSA’s financings) and storm expenditures (variances from the annual budget for storm expenses in base rates). The Delivery Service Adjustment is expected to be calculated through the end of September each year, which allows for the bill impact to be known before annual budget approval and the adjustment to be implemented on the following January 1 of each year.

In addition, the Recommendation affirmed the Authority’s use of a “Revenue Decoupling Mechanism.” The Board established a Revenue Decoupling Mechanism in March 2015 as an “Adjustment to Rates and Charges,” which PSEG Long Island may calculate and update each year according to the pre-defined terms of the tariff. All six of the major New York electric utilities have Revenue Decoupling Mechanisms. Mechanically, Revenue Decoupling Mechanisms function by comparing actual revenues with authorized revenues and crediting (or collecting) any differences due to (or from) customers. The Revenue Decoupling Mechanism covers all sources of variances in delivery service revenues including any net lost revenues attributable to implementing energy efficiency or net metering programs, any revenue variances (positive or negative) caused by weather patterns, and revenue variances (positive or negative) that result from changes in economic conditions.

### **Modifications to the Tariff**

Information on approved modifications to the Authority’s Tariff is available in the “Approved Rulemaking” section of the website: <https://www.lipower.org/about-us/tariff/approved-rulemaking/>. Information on proposed but not yet approved modifications to the Authority’s Tariff is available in the “Proposed Rulemaking” section of the website: <https://www.lipower.org/about-us/tariff/proposed-rulemaking/>. Such information on the website is not included herein by specific cross-reference.

### **Comparative Rates**

The table below sets forth LIPA’s 2018 average residential and commercial rates as compared with certain New York City metropolitan area electric utilities.

### Comparative Rates\*

Utility Name	2018 Average Residential Price (cents/kWh)	2018 Average Commercial Price (cents/kWh)
Consolidated Edison Co-NY	26.35	19.30
United Illuminating Company	25.30	18.68
<b>Long Island Power Authority</b>	<b>20.68</b>	<b>18.78</b>
Orange & Rockland Utilities	20.53	13.66
Eversource (CL&P)	20.32	17.57
PSE&G (New Jersey)	15.73	12.11

Source: Form EIA-861M (formerly EIA-826) detailed data: <https://www.eia.gov/electricity/data/eia861m/>

\* Subject to change as 2018 data has not been finalized.

### BILLING AND COLLECTIONS

As of December 31, 2018, the Authority served approximately 1.1 million customers in its service area. For the 12-month period ending December 31, 2018, the 12-month write-off rate for uncollectible accounts was 0.53%, which was lower than the write-off rate average over the preceding five fiscal years.

### SECURITY AND SOURCES OF PAYMENT FOR THE BONDS

Under the OSA, the service provider must bill and collect such fees, rates, rents and charges for the use and services of the T&D System as established by the Authority under the Resolution and the Act.

Since LIPA owns the System, the Financing Agreement contains covenants as to the operation and maintenance of the System, and the Resolution contains covenants of the Authority to enforce the Financing Agreement and assigns to the Trustee certain of the Authority's rights and interests under the Financing Agreement, including the right to bring actions and proceedings to enforce the Financing Agreement.

#### Pledge of Trust Estate

The Resolution pledges the Trust Estate for the payment of the Bonds and all Parity Obligations, subject to the provisions of the Resolution, the Act and the Financing Agreement permitting certain applications of the Trust Estate and subject to the prior payment of Operating Expenses.

The Resolution authorizes the application of Revenues to certain purposes free and clear of the lien of the pledge. These applications include payment of Operating Expenses from the Operating Expense Fund prior to the deposit of Revenues in the Debt Service Fund. In addition, amounts on deposit in the Rate Stabilization Fund may be used for any lawful purpose of the Authority or LIPA, and amounts retained in the Revenue Fund may be used for any lawful purpose of the Authority or LIPA, as determined by the Authority.

The principal items in the Trust Estate pledged by the Resolution include:

- (i) all payments received by the Authority from LIPA under the Financing Agreement, and all rights to receive the same;
- (ii) all Revenues and all right, title and interest of the Authority in and to Revenues, and all rights of the Authority to receive the same;
- (iii) the proceeds of sale of Bonds until expended for the purposes authorized by the Supplemental Resolution authorizing such Bonds; and
- (iv) all funds, accounts and subaccounts established by the Resolution, including securities credited thereto and investment earnings thereon.

The Authority covenants in the Resolution that it will not, and will not permit LIPA to, issue any bonds, notes or other evidences or indebtedness or otherwise incur any indebtedness, other than Bonds or Parity Obligations, secured by a pledge of or other lien or charge on the Trust Estate which is prior to or of equal rank or priority with the pledge made by the Resolution, and that it will not create or cause to be created any lien or charge on the Trust Estate which is prior to or of equal rank or priority with the pledge made by the Resolution.

### **Payment of Revenues Pursuant to Financing Agreement**

Under the Financing Agreement, LIPA transfers to the Authority all its right, title and interest in and to the Revenues, including all right to collect and receive the same, subject to the provisions of the Financing Agreement and the Resolution providing for the application of Revenues, and consents to the assignment by the Authority to the Trustee of its interest therein.

Revenues are defined in the Resolution to mean all revenues, rates, fees, charges, surcharges, rents, proceeds from the sale of LIPA assets, proceeds of insurance, and other income and receipts, as derived in cash, directly or indirectly from any of LIPA's operations, by or for the account of the Authority or LIPA including but not limited to all payments received by the Authority or LIPA with respect to any guaranty of performance under any System Agreement and all dividends received by the Authority as a result of ownership of any stock or other evidence of an equity interest in LIPA; provided, however, that Revenues shall not include (i) any Transition Charge (as defined below), (ii) any such income or receipts attributable directly or indirectly to the ownership or operation of any Separately Financed Project, or (iii) any federal or State grant moneys the receipt of which is conditioned upon their expenditure for a particular purpose unless the Authority determines that such moneys constitute Revenues. Revenues also do not include any amounts, or amounts from any sources, as may be specified from time to time by Supplemental Resolution; provided, however, that at such time the applicable additional Bonds tests of the Resolution will be satisfied (whether or not the tests are then required to be met for other purposes) without regard to such amounts. Transition Charge means any rates, fees, charges or surcharges relating to the T&D System or the customers thereof established by irrevocable rate order or other action or instrument, and applicable to or by the Authority or LIPA, in conjunction with the issuance of debt or other securities under a separate resolution, indenture or similar instrument (other than the Resolution) to the extent such rates, fees, charges or surcharges are pledged or otherwise encumbered or conveyed as security for such debt or other securities. Each financing order contains a finding that the applicable restructuring charge is a Transition Charge for purposes of the Resolution. See "INTRODUCTION TO THE AUTHORITY AND LIPA – The LIPA Reform Act."

### **Funds**

The Resolution establishes the following Funds: the Construction Fund; the Revenue Fund; the Operating Expense Fund; the Debt Service Fund; the Parity Contract Obligations Fund; the Subordinated Indebtedness Fund; the LIPA Unsecured Debt Fund; the PILOTs Fund; and the Rate Stabilization Fund, all to be held by or on behalf of the Authority except for the Debt Service Fund, which is to be held by the Trustee.

### **Flow of Funds**

The Authority is required by the Resolution, as promptly as practicable after receipt thereof by LIPA, to deposit all Revenues in the Revenue Fund. Amounts on deposit from time to time in the Revenue Fund shall be withdrawn and deposited in this order of priority:

FIRST: to the Operating Expense Fund, the amount determined by the Authority from time to time to be deposited to pay, or to be set aside therein as a reserve for the payment of, Operating Expenses;

SECOND: (A) to the Debt Service Fund, the amounts required to pay or provide for the payment of the Principal Installments and Redemption Price of and interest on Bonds and Parity Reimbursement Obligations; and

(B) to the Parity Contract Obligations Fund, the amount determined by the Authority to be required to be deposited therein to pay or provide for the payment of Parity Contract Obligations;

THIRD: if such amounts are not expected by the Authority to be required thereafter for purposes of paragraphs FIRST and SECOND, to the Subordinated Indebtedness Fund, the amount determined by the Authority to be required to be deposited therein to pay or provide for the payment of Subordinated Indebtedness;

FOURTH: if such amounts are not expected by the Authority to be required thereafter for purposes of paragraphs FIRST, SECOND or THIRD above, to the LIPA Unsecured Debt Fund, the amount determined by the Authority to be required to be deposited therein to pay or provide for the payment of Outstanding LIPA Unsecured Debt;

FIFTH: if such amounts are not expected by the Authority to be required thereafter for purposes of paragraphs FIRST, SECOND, THIRD or FOURTH, to the PILOTs Fund, the amount determined by the Authority to be required to be deposited in such Fund to pay or provide for the payment of PILOTs; and

SIXTH: if such amounts are not expected by the Authority to be required thereafter for purposes of paragraphs FIRST, SECOND, THIRD, FOURTH or FIFTH, to the Rate Stabilization Fund, the amount determined by the Authority to be deposited therein to provide for any payments or deposits from Revenues thereafter.

Any moneys remaining in the Revenue Fund may be used for any lawful purpose of the Authority or LIPA, as determined by the Authority, including, but not limited to, the purchase or redemption of any bonds, notes or other obligations of the Authority or LIPA.

### **Rate Covenant**

The Authority covenants in the Resolution to establish and maintain System fees, rates, rents, charges and surcharges sufficient in each Fiscal Year so that Revenues reasonably expected to be produced in such Fiscal Year will be at least equal to the sum of:

- (i) 100% of Debt Service, and amounts under all Parity Contract Obligations, payable by the Authority in such Fiscal Year;
- (ii) 100% of the Operating Expenses payable in such Fiscal Year;
- (iii) 100% of the amount necessary to pay all PILOTs payable in such Fiscal Year; and
- (iv) 100% of the amount necessary to pay other Required Deposits, all other payments required pursuant to the Resolution and the Financing Agreement, and all other payments required for the System, for such Fiscal Year.

If at any time such fees, rates, rents, charges and surcharges are or will be insufficient to meet the Rate Covenant, it will not constitute an Event of Default if and to the extent the Authority promptly takes action reasonably expected by the Authority to cure or avoid any such deficiency or to cause the same to be cured or avoided. In addition, the failure in any Fiscal Year to comply with the covenant in clauses (iii) and (iv) above (the “non-debt service and operating expense rate covenant”), will not constitute an Event of Default if the Authority retains a Rate Consultant and a Consulting Engineer to review System fees, rates, rents, charges and surcharges and review the System Budget and complies with the following sentence. If the Rate Consultant (relying upon a Certificate of the Consulting Engineer) is of the opinion that a schedule of fees, rates, rents, charges and surcharges for the T&D System which would provide funds to meet the requirements specified in the non-debt service and operating expense rate covenant is impracticable at that time and the Authority therefore cannot comply with the non-debt service and operating expense rate covenant, then the Authority will fix and establish such schedule of System fees, rates, rents, charges and surcharges as is recommended in such Certificate by the Rate Consultant to comply as nearly as practicable with the non-debt service and operating expense rate covenant, and in such event the failure of the Authority to comply with the non-debt service and operating expense rate will not constitute an Event of Default.

For the Rate Covenant, at any time, (i) Revenues include any amounts withdrawn or expected to be withdrawn thereafter in any Fiscal Year from the Rate Stabilization Fund which were either (a) on deposit therein

prior to such Fiscal Year or (b) proceeds of Bonds or Subordinated Indebtedness issued to fund the Shoreham Credits, (ii) Revenues do not include any proceeds from the sale of LIPA assets or proceeds of insurance, and (iii) Debt Service, Parity Contract Obligations, PILOTs and other Required Deposits will not include any amounts expected by the Authority to be paid from any funds, other than Revenues, reasonably expected by the Authority to be available therefore (including without limitation the anticipated receipt of proceeds of sale of Bonds or Subordinated Indebtedness, or moneys not a part of the Trust Estate, expected by the Authority to be used to pay the principal of Bonds, Parity Contract Obligations, Outstanding LIPA Unsecured Debt or Subordinated Indebtedness, other than proceeds of Bonds or Subordinated Indebtedness issued to fund the Shoreham Credits), which expectations, if included in a resolution of the Authority or Certificate of an Authorized Representative, will be conclusive.

In addition, the Authority covenants in the Resolution to review, or cause LIPA to review, the adequacy of System fees, rates, rents, charges and surcharges at least annually. Except to the extent required by law, the Authority covenants not to permit LIPA to furnish or supply or cause to be furnished or supplied any product, use or service of the System free of charge (or at a nominal charge) to any person, firm or corporation, public or private, unless the Authority determines that other adequate consideration has been, or is expected to be, received in connection therewith, and to cause LIPA to enforce or cause to be enforced the payment of any and all amounts owing to LIPA for use of the System in accordance with the Financing Agreement.

### **Additional Bonds Test**

There is no limit or test for issuing additional Bonds under the Resolution.

### **Subordinated Indebtedness; Acceleration of Subordinated Indebtedness**

There is no limit or test for issuing Subordinated Indebtedness under the Resolution.

Subordinated Indebtedness is subject to acceleration prior to maturity upon the occurrence of certain events. An acceleration of Subordinated Indebtedness would not cause an acceleration of the Bonds or affect the priority of the application of Revenues to the payment of the Bonds. In such an event any amounts then available under the Resolution after the payment of Operating Expenses and Debt Service on any Bonds and Parity Contract Obligations could be required to be applied to the payment of the Subordinated Indebtedness.

### **Other Agreements**

The Authority sometimes executes agreements in connection with the incurrence of Bonds issued under the Resolution. In addition, the Authority may execute agreements to directly reflect the incurrence of senior, subordinated or unsecured debt under the Resolution, which may be done as a direct placement with the lender(s). Those agreements typically contain covenants, events of default, remedies, priority rights, and other similar terms.

The Authority's current agreements generally include the following covenants, among others: (i) a requirement that the Authority maintain an amount not less than \$150,000,000 in the Rate Stabilization Fund; (ii) a rate covenant substantially the same as that described above under " – Rate Covenant," but such that Revenues are reasonably expected to be at least equal to 110% of such amounts; and (iii) the Authority or LIPA will not issue additional debt (other than certain refunding debt) unless the Authority can provide (a) a certificate of the Authority establishing that the Revenues for any twelve consecutive months within the eighteen (18) months preceding the issuance satisfied certain requirements set forth therein or (b) a certificate of a Rate Consultant establishing that the Revenues for the Fiscal Year of issuance and the next five (5) full Fiscal Years are projected to satisfy certain requirements set forth therein. The terms of all such agreements including, without limitation, those described herein are subject to amendment, waiver or termination in accordance with the agreements and there is no guarantee that any such terms will be in effect or enforced by a counterparty at any time.

*For convenience, copies of such agreements can be found on the Authority's website (<https://www.lipower.org/investors>) under the caption "Certain Other Financing Documents." Such information on the website is not included herein by specific cross-reference.*

## **LONG ISLAND POWER AUTHORITY**

The Authority is a corporate municipal instrumentality and a political subdivision of the State created by the Act. LIPA is a wholly-owned subsidiary of the Authority, which was formed and exists under the Business Corporation Law of the State.

### **The Act**

Pursuant to the Act, the Authority has all of the powers necessary or convenient to carry out the purposes and provisions of the Act including, without limitation, to (i) acquire real or personal property; (ii) enter into agreements or contracts consistent with the exercise of its powers; (iii) borrow money, issue notes, bonds or other obligations and secure its obligations by mortgage or pledge of its property; (iv) create or acquire one or more wholly-owned subsidiaries; (v) set its rates and charges; and (vi) make inquiries, investigations and studies necessary to carry out its objectives.

The Authority may enter into agreements to purchase power from the Power Authority of the State of New York ("NYPA"), the State, any State agency, any municipality, any private entity or any other available source (excluding Canada unless negotiated through NYPA) at such price as may be negotiated. The Authority is specifically authorized to provide and maintain generating and transmission facilities and enter into management agreements for the operation of all or any of the property or facilities owned by it. Finally, the Authority may transfer any of its assets to one or more private utilities or municipal gas or electric agencies for such consideration and upon such terms as the Authority may determine to be in the best interest of the gas and electric ratepayers in the Service Area. The Act permits the Authority to file a petition under Chapter 9 of Title 11 of the United States Bankruptcy Code or take other similar action for the adjustment of its debts. LIPA as a business corporation may file a petition under Chapter 7 or Chapter 11 of Title 11 of the United States Bankruptcy Code.

The Act requires that any resolution authorizing the issuance of bonds contain a covenant by the Authority that it will at all times maintain rates, fees or charges sufficient to pay, and that any contracts entered into by the Authority for the sale, transmission or distribution of electricity shall contain rates, fees or charges sufficient to pay, the costs of operation and maintenance of the facilities owned or operated by the Authority, PILOTs, renewals, replacements and capital additions, the principal of and interest on any obligations issued pursuant to such resolution as they become due and payable, and to establish or maintain any reserves or other funds or accounts required or established by or pursuant to the terms of such resolution.

### **Trustees**

The Authority is governed by the Board. The Board supervises, regulates and makes policy for the Authority. The Board appoints a Chief Executive Officer, who is responsible for the Authority's overall management and operation. The hiring of all employees other than the Chief Executive Officer, Chief Financial Officer and General Counsel is under the jurisdiction of the Chief Executive Officer.

The Board consists of nine Trustees, five of whom are appointed by the Governor, two by the Temporary President of the State Senate and two by the Speaker of the State Assembly. As of the date hereof, there is one vacancy on the Board. The Board chair is appointed by the Governor. The Trustees serve for staggered four-year terms. The LIPA Reform Act requires that all Trustees reside in the Service Area and have relevant utility, corporate board or financial experience. Trustees are not compensated for their service but are reimbursed for reasonable expenses.

Pursuant to the Public Authorities Law and as set forth in the Authority's By-laws, five (5) Trustees of the Authority constitute a quorum for the transaction of any business or exercising any power of the Authority and the Authority only has the power to act by a vote of five (5) Trustees.

Pursuant to the Act, the Trustees and the officers of the Authority are not subject to any personal or civil liability resulting from the exercise, carrying out or advocacy of the Authority's purposes or powers. The By-laws and other instruments of the Authority and LIPA provide for the indemnification of the Trustees, officers and employees of the Authority and the directors, officers and employees of LIPA.

## **Business Strategy**

The Board has defined the mission of the Authority as “to enable clean, reliable and affordable electric service for our customers on Long Island and the Rockaways.” The Board has adopted a series of policies related to its strategy to fulfill the Authority’s mission. For each Board Policy, the Board has specified required performance reports by management that allow the Board to monitor the Authority’s performance relative to its policies. Some of the elements of the Board’s policies include:

- Funding cost-effective programs to provide a level of reliability, as measured by system average outage duration (known as System Average Interruption Duration Index or SAIDI), within the first quartile as compared to peer utilities;
- Funding cost-effective initiatives and ongoing operations to provide customers with a level of service, as measured by industry standard customer service metrics, within the first quartile of peer utilities;
- Planning for and maintaining a power supply portfolio that meets applicable New York State Independent System Operator and New York State Reliability Council requirements, environmental standards, and the State’s Clean Energy Standard;
- Maintaining electric rates comparable to the published rates on a system average basis of other regional utilities that surround the Authority’s service territory;
- Achieving fixed charge coverage of no less than 1.40x in 2018 and 1.45x in 2019 on Authority-issued debt (and no less than 1.25x on Authority and UDSA-issued debt);
- Issuing new debt equal to no more than 64% of capital spending;
- Assessing and mitigating enterprise risks that could affect the Authority’s ability to carry out its mission;
- Mitigating a portion of the volatility in electric rates associated with natural gas and electric purchases through commodity hedging; and
- Paying only such taxes, PILOTs, assessments, and fees as are required by law or by agreement and availing itself of the lawful right to challenge excessive tax assessments and payment obligations.

The Authority generally reviews its Board Policies annually. More information about the Board’s Policies can be found on the Authority’s website at <http://www.lipower.org/mission/>. Such information on the website is not included herein by specific cross-reference. Achieving the results specified in the Board’s Policies involves risks and uncertainties, and therefore the Authority’s actual results may differ.

## **Management and Operation of the System**

*Administrative Services Agreement.* The Authority and LIPA are parties to an Administrative Services Agreement, which sets forth the terms and conditions under which the Authority will provide personnel, personnel-related services and other services (including management, supervisory, payroll and other services) necessary for LIPA to provide electric service in the Service Area. Except for services of the type and nature provided to LIPA by outside independent agents, attorneys and consultants and for any other services provided under agreements approved by the Authority, LIPA will meet its personnel and personnel-related needs exclusively through the Administrative Services Agreement. The Administrative Services Agreement may be amended to reflect the changing needs of the Authority and LIPA.

Under the Administrative Services Agreement, the services provided by the Authority include, but are not limited to: (i) performance of LIPA’s duties and obligations and enforcing its rights under any existing and future contracts between LIPA and any other person; (ii) coordination of services for which LIPA contracts; (iii) coordination

of negotiations and studies authorized by LIPA for any project for the supply of Power and Energy or the provision of transmission capacity to LIPA; (iv) reviewing invoices; (v) disbursement of all funds of LIPA; (vi) preparation of construction and operating budgets on behalf of LIPA; (vii) provision or coordination of all other accounting matters and preparation of billings to, and collection from, LIPA's customers; (viii) coordination of all other matters arising under any agreements relating to any project that LIPA might undertake; (ix) securing information from any persons required to fulfill LIPA's obligations under any agreements arising from the Administrative Services Agreement, the agreements referred to in clauses (i) and (viii), and any project LIPA might undertake; (x) provision or coordination of rate matters; and (xi) provision or coordination of such other services as LIPA determines are required to carry out its business in an economical and efficient manner.

*Board Leadership and Senior Management.* The Board leadership and senior management of the Authority, with information covering their background and experience, are listed below. The Authority's staff is approximately 55 positions.

*Ralph V. Suozzi* is the Chairman of the Board. A former business executive with over 30 years' experience in corporate leadership, including CBS Television and American Express, Mr. Suozzi served as Mayor of the City of Glen Cove, from 2006 to 2013 and is currently the Village Administrator for the Incorporated Village of Garden City. In his executive role at American Express, Mr. Suozzi directed teams that designed, deployed, maintained and trained professionals on systems that affected more than 100,000 employees worldwide. As mayor of Glen Cove he spearheaded and sustained a financial turnaround during a global recession, reducing an inherited deficit by 79%, cutting debt 21%, securing more than \$48 million in federal, State, and county grants, generating \$3.3 million in new revenue sources, and reducing expenses by \$4.1 million annually. Mr. Suozzi managed 20 boards and more than 500 employees and volunteers. Additionally, he chaired Glen Cove's Community and Industrial Development Agencies. Mr. Suozzi was honored by the Nassau County AHRC Foundation for his humanitarian efforts, the Nassau County Chapter of the NYS Society of Professional Engineers and the Long Island Contractors Association for his focus on infrastructure improvements, and The North Shore Wildlife Sanctuary for environmental achievements relating to the rehabilitation of Dosoris Pond. Mr. Suozzi's other achievements include being a Vision Long Island & NYCOM Award Winner, expert panelist for Sustainable Long Island, selected advisor to the New York State Conference of Mayors, and recognition by the Long Island Planning Council, the Long Island Index, and the New York League of Conservation Voters. Mr. Suozzi was one of just four mayors nationally invited to participate in a panel discussion at the United States Environmental Protection Agency ("EPA") 2011 Brownfields Conference, and one of just 30 mayors nationwide to serve on the EPA's 2012 Local Government Advisory Committee. Mr. Suozzi is a graduate of the Energeia Partnership, a think-tank organization focused on challenges facing Long Island leaders from a variety of businesses and disciplines. Mr. Suozzi is a graduate of Long Island University - CW Post Center, is a former ten-year member of the Glen Cove Volunteer Fire Department, and son of Glen Cove's former mayor, Vincent "Jimmy" Suozzi.

*Thomas Falcone*, Chief Executive Officer, has served as Chief Executive Officer since September 2015 and is responsible for achieving the mission and values and managing the Authority, the third largest not-for-profit, publicly owned electric utility in the United States. Mr. Falcone joined the Authority in January 2014 and previously served as Chief Financial Officer. Prior to joining the Authority, Mr. Falcone was an investment banker and advisor to publicly owned utilities and state and local governments. In that role, Mr. Falcone worked with many of the largest public utilities in the United States and raised more than \$25 billion for infrastructure investments across the country. Mr. Falcone also serves as the Chief Executive Officer of UDSA and is a board member of the Large Public Power Council and the Advanced Energy Research and Technology Center at Stony Brook University. Mr. Falcone also participates in the Energeia Partnership, a think-tank organization of local leaders focused on the challenges facing Long Island. Mr. Falcone received a Bachelor of Science in Economics from the Wharton School of the University of Pennsylvania.

*Kenneth Kane*, Interim Chief Financial Officer, joined the Authority in 1999 as Director of Financial Reporting, served as Controller for 12 years prior to being appointed Managing Director of Finance and Budgeting in 2013 and Vice President of Financial Oversight in May 2016. As Interim Chief Financial Officer, Mr. Kane manages all financial activities of the Authority, including accounting, budgeting, debt issuance, financial reporting, financial policy, and risk management. Mr. Kane has 35 years of experience in the electric utility industry beginning in 1984 with Ernst & Young's utility practice. Mr. Kane joined LILCO in 1988. Mr. Kane is a Certified Public Accountant in the State of New York, a member of the American Institute of Certified Public Accountants, and received a Bachelor

of Arts degree from Pace University and a Master of Business Administration degree in Finance from Hofstra University.

*Anna Chacko* was appointed the Authority's General Counsel in July 2018. Ms. Chacko has over 20 years of utility, energy, and regulatory law experience, including senior positions at Con Edison, National Grid, and a privately held global energy and gas company. After a decade as a litigator at a New York law firm, Ms. Chacko's energy career began at KeySpan Corporation, now a subsidiary of National Grid, in 1997. Her responsibilities included electric rate cases before FERC and PSC, electric transmission siting projects, negotiation of power plant and commercial contracts, energy deregulation issues, wholesale market rules, and advising energy trading subsidiaries on federal and state compliance. Ms. Chacko then joined Con Edison, handling regulatory matters for the electric, gas, and steam businesses, including New York policy-making proceedings for the State's Reforming the Energy Vision, such as distributed generation, renewables, safety, reliability, and customer service. Most recently Anna worked as a legal and regulatory consultant at National Grid. Ms. Chacko completed her undergraduate education and legal training in the United Kingdom, where she was admitted as a Barrister-at-Law at the Inns of Court School of Law. She also holds a LL.M. from Duke University School of Law and is admitted to practice in several jurisdictions and countries.

*Rick Shansky*, Vice President of Operations Oversight, directs the Authority's oversight of the operations of its primary contractor PSEG Long Island and its contractors engaged in power and fuel procurement. Mr. Shansky also manages the Authority's participation in wholesale power markets. Mr. Shansky has 38 years of electric utility experience and has held several management positions at the Authority since joining in 2008. Previously, Mr. Shansky held positions at Con Edison and LILCO in the areas of energy management, resource planning, fuel and purchased power, and generation planning. Mr. Shansky has a Bachelor of Science in Electrical Engineering from Rensselaer Polytechnic Institute and a Master of Science in Energy Management from the New York Institute of Technology. Mr. Shansky is also a licensed Professional Engineer in the State.

*Bobbi O'Connor*, Vice President of Policy, Strategy and Administration, is responsible for the development and administration of the Authority's strategic planning and policy setting process and oversees the Authority's human resources and administrative functions. Ms. O'Connor also serves as the Secretary to the Board. Ms. O'Connor joined the Authority in November 2013 as Assistant General Counsel for commercial transactions and was named Deputy General Counsel in June 2014. Prior to joining the Authority, Ms. O'Connor was a partner in the business and finance department of an international law firm where her practice involved advising clients on securities law matters, with a focus on representing utility clients. Ms. O'Connor received a Bachelor of Arts degree in Psychology from Loyola College of Maryland and a Juris Doctor from Hofstra University School of Law.

*Donna Mongiardo*, Vice President, Controller, joined the Authority in 2001, and has served in several roles culminating in her appointment to Controller in 2013. Ms. Mongiardo has responsibility for all accounting matters related to the Authority, its wholly owned subsidiary, LILCO, and the Authority's component unit, the Utility Debt Securitization Authority. Ms. Mongiardo also directs the financial oversight of PSEG Long Island, including budgets, financial reporting and rate setting. Ms. Mongiardo began her career as an auditor in PricewaterhouseCooper's financial services and public utilities practice group. In 1998, Ms. Mongiardo served as a member of the LIPA/LILCO merger team and subsequently served the Authority as an account manager. Ms. Mongiardo is a Certified Public Accountant in the State of New York and received a Bachelor of Business Administration degree in Accounting from Hofstra University. She is a member of the New York State Government Finance Officers' Association (GFOA).

*Kathleen Mitterway*, Vice President, Audit, joined the Authority in September 2014 and manages all internal audit activities at the Authority, including audits of the Authority's service provider, PSEG Long Island. Prior to joining the Authority, Ms. Mitterway was the Comptroller for a local municipality and has over 30 years of utility experience at Verizon Communications in internal audit and operating positions. Ms. Mitterway is a Certified Public Accountant in the State of New York, Certified Fraud Examiner, Certified Internal Auditor, Certified Information Systems Auditor, and a Chartered Global Management Accountant. Ms. Mitterway is a member of the American Institute of Certified Public Accountants, the Institute of Internal Auditors, the New York State Government Finance Officers' Association (GFOA), the Association of Certified Fraud Examiners, and the Information Systems Audit and Control Association. Ms. Mitterway received a Bachelor of Science degree in Accounting and a Master of Business Administration degree from St. John's University.

*Mujib Lodhi*, Chief Information Officer, is responsible for the management of the information security and technology at the Authority including its business applications, computing infrastructure, networks and cyber security. Prior to the Authority, Mr. Lodhi spent over two decades as the Chief Information Officer for large utilities across the United States including Riverside Public Utilities, Washington Suburban Sanitary Commission and District of Columbia Water and Sewer Authority. Mr. Lodhi has authored papers on advanced data analytics with IBM research scientists. Mr. Lodhi holds a B.S. from the University of Indianapolis in Management Information Systems. He has also completed graduate coursework in Leadership from Nyack College, the Management Development Program from Harvard's Graduate School of Education and Leadership and the Strategic Management Program from Cornell University.

## THE SYSTEM

### Service Area

The Service Area consists of Nassau and Suffolk Counties in Long Island (except for the Nassau County villages of Freeport and Rockville Centre and the Suffolk County village of Greenport, each of which has an individually owned municipal electric system that supplies and distributes electricity to ultimate consumers within those municipalities) and a portion of Queens County in the City of New York known as the Rockaways. According to Bureau of Census data, the population of the Service Area was approximately 3.1 million as of July 1, 2018, which represents a slight decline since July 1, 2013. As of December 31, 2018, the Authority had approximately 1.1 million customers in the Service Area, which was relatively stable as compared to December 31, 2013.

Long Island is a significant regional economy that benefits from its proximity to Manhattan, but also generates its own income, employment, and regional output. Long Island has a highly skilled labor force, close proximity to New York City, over 20 colleges, universities and core research institutions, such as Brookhaven National Laboratory, Cold Spring Harbor Laboratory, and the technology and science developmental centers at Stony Brook and Farmingdale Universities that specialize in the areas of biotechnology, computer sciences, wireless and internet technologies, and energy. Long Island also has a highly desirable suburban life style that attracts many individuals to live, work and vacation within the area.

The Long Island economy benefits from high average personal income and a service-based economy. According to data published by the U.S. Bureau of the Census, Nassau and Suffolk Counties had median household incomes of \$105,744 and \$92,388 (in 2017 dollars), respectively, compared to a national median of \$57,652.

The table below shows Long Island's unemployment rate as compared with the national and State unemployment rates for the periods shown:

<b>Service Area Unemployment – Average Annual</b>			
<b>Year</b>	<b>US<sup>1</sup></b>	<b>NY<sup>1</sup></b>	<b>Nassau-Suffolk<sup>1</sup></b>
2014	6.2%	6.3%	5.1%
2015	5.3%	5.3%	4.5%
2016	4.9%	4.8%	4.2%
2017	4.4%	4.7%	4.4%
2018	3.9%	4.1%	3.8%

Sources:

<sup>1</sup> Bureau of Labor Statistics: <http://www.bls.gov/data/> (not seasonally adjusted data)

In the year ending December 31, 2018, approximately 56% of LIPA's annual retail revenues were received from residential customers, 42% from commercial customers and 2.0% from street lighting, public authorities and certain others. The largest customer in the Service Area (the Long Island Rail Road) accounted for less than two percent of total sales and less than two percent of revenue. In addition, the ten largest customers in the Service Area accounted for approximately seven percent of total sales and six percent of revenue.

## **The Transmission and Distribution System**

The T&D System is an integrated electric system consisting of overhead and underground facilities, equipment, land parcels, easements, contractual arrangements and other assets used to provide the transmission and distribution of electric capacity and energy to and within the Service Area. The T&D System includes seven transmission interconnections owned in part or under contract that link the T&D System to neighboring utilities.

### *Transmission Facilities*

LIPA's transmission facilities provide for the delivery of capacity and energy from transmission interconnections and on-Island generating stations to LIPA's electric distribution system. As of December 31, 2018, the transmission system consists of approximately 1,400 miles of overhead and underground lines with voltage levels ranging from 23 kilovolts ("kV") to 345 kV.

The on-Island transmission system has been constructed following standards similar to those employed by other major electric utilities in the Northeast and includes wood poles, steel poles, and lattice steel towers. Many of the existing transmission structures support distribution circuits and/or connections for telephone, cable television, or fiber optics.

In accordance with the latest North American Electric Reliability Corporation ("NERC") standards, forty (40) LIPA-owned transmission substations are part of the Bulk Electric System ("BES"). The combined capability of LIPA's BES and non-BES transmission substations is approximately 8,600 million volt-amperes ("MVA"). The transmission system also includes LIPA-owned transformation equipment at nine generating sites under contract with LIPA that is used to step up the generation voltage to transmission voltage levels, and 8 substations that interconnect to independent power producers ("IPPs") or other generation.

### *Distribution Facilities*

The distribution system comprises 13 kV and 4 kV facilities and a combination of overhead and underground equipment. There are 151 distribution substations throughout the Service Area that step the voltage down from transmission to distribution levels. The combined capability of LIPA's distribution substations have a combined transformation capability of approximately 8,250 MVA. As of December 31, 2018, the distribution system also includes approximately 14,000 circuit miles of overhead and underground line (9,000 overhead and 5,000 underground), and approximately 189,000 line transformers with a total capacity of approximately 13,000 MVA. A portion of the poles on which LIPA's distribution facilities have been installed are owned by Verizon Communications and used by LIPA under a joint-use agreement pursuant to which the parties aim to maintain parity.

### *Reliability*

LIPA and PSEG Long Island undertake programs intended to maintain and/or improve the reliability and quality of electric service within the Service Area. For the distribution system, these programs are focused on several major areas: (i) circuit reconfiguration and reinforcement; (ii) pole replacement; (iii) system automation; (iv) tree trimming; (v) targeted system enhancements; and (vi) circuit conversion and reinforcement projects to serve new customer loads. For the transmission system, the improvement program is focused on: (i) transmission system reliability; (ii) substation reliability improvements; (iii) transmission breaker replacements; and (iv) a structure inspection program. These program elements are a key part of efforts to limit both the frequency and duration of customer outages.

Over the five-year period from 2014 through 2018, LIPA's customers experienced an average of 13.4 months between interruptions and average interruption times of 74.1 minutes. Based on data provided by the PSC for all State utilities (other than Consolidated Edison Company of New York, Inc. ("Con Edison"), which is primarily an underground utility), the average time between interruptions during the five-year period from 2014 through 2018 was 12.2 months and the average duration of an interruption was 109.2 minutes. These statistics indicate that LIPA's system-wide frequency and duration of outages were among the most favorable for overhead utilities in New York. These statistics exclude outages due to major storms, consistent with PSC standards.

The average period between interruptions for a customer served by LIPA during 2018 was approximately 14 months. For those LIPA customers affected by an interruption during 2018, the average length of interruption was approximately 76.1 minutes. These statistics compare to an average time between interruption of 12.6 months and an average interruption of approximately 69.3 minutes for a LIPA customer during 2017.

Long Island experiences seasonal conditions typical of the northeast United States. Summers are usually hot with high temperatures over 90°F. Winters include snow and icing conditions that can be damaging to overhead power lines. In addition, the Service Area experiences severe storms, including hurricanes, which can be damaging due to Long Island’s coastal location.

#### *Transmission Interconnection Facilities*

The geographic location of the Service Area restricts the number of transmission interconnections between LIPA’s T&D System and other systems in the region. Seven major transmission lines connect the T&D System with the Con Edison system to the west and with Eversource (Connecticut Light & Power) (“ES-CL&P”) and United Illuminating Company to the north and Jersey Central Power & Light (“JCP&L”) to the southwest. These interconnections are summarized in the table that follows.

**Service Area Transmission Interconnections**

<b>Name</b>	<b>Off System Terminal Locations</b>	<b>Summer Capacity (MW)</b>	<b>Interconnecting Utility</b>	<b>Voltage<sup>2</sup></b>
Dunwoodie to Shore Road (Y-50)	Westchester County, NY	656	Con Edison <sup>1</sup>	345 kV
East Garden City to Sprain Brook (Y-49)	Westchester County, NY	637	Con Edison <sup>8</sup>	345 kV
Northport to Norwalk Cable (NNC)	Norwalk, CT	436	ES-CL&P <sup>1,3</sup>	138 kV
Jamaica to Lake Success	Queens, NY	240	Con Edison <sup>1</sup>	138 kV
Jamaica to Valley Stream	Queens, NY	268	Con Edison <sup>1</sup>	138 kV
Shoreham to East Shore (CSC)	New Haven, CT	330	United Illuminating <sup>7</sup>	138 kV <sup>4</sup>
Sayreville to Levittown (Neptune)	Sayreville, NJ	660	JCP&L <sup>5</sup>	345 kV <sup>6</sup>

Footnotes appear on the following page.

- 1 These utilities own the portion of the interconnections not owned by LIPA.
- 2 Kilovolt or “kV.”
- 3 ES-CL&P = Eversource (CL&P).
- 4 This cable carries high voltage direct current, which is converted and delivered to the LIPA system at 138 kV.
- 5 JCP&L = Jersey Central Power & Light. JCP&L is a wholly-owned operating subsidiary of First Energy.
- 6 This cable carries high voltage direct current, which is converted and delivered to the LIPA system at 138 kV.
- 7 United Illuminating Company is a subsidiary of AVANGRID, Inc.
- 8 Owned by NYPA.

The Con Edison cable extending approximately 18 miles from Dunwoodie to Shore Road (the “Y-50 Cable”) was placed in operation in August 1978 and is jointly owned by LIPA and Con Edison. Con Edison’s share of the power flowing across the Y-50 Cable is delivered to Con Edison via the two 138 kV cables to Jamaica.

The East Garden City to Sprain Brook interconnection (the “Y-49 Cable”), installed in 1991, is another major transmission interconnection. The Y-49 Cable comprises submarine and land-based portions totaling approximately 23 miles. This line is owned entirely by NYPA; however, most of the capacity of the Y-49 Cable is used by LIPA under the terms of a contract with NYPA.

The cable from Northport to Norwalk Harbor (the “NNC”), which was installed in 2008 to replace the original cable installed in 1969, extends approximately twelve miles under the Long Island Sound from the Northport generating station in Suffolk County, New York to Norwalk Harbor, Connecticut. LIPA owns that portion of the line from Northport to the New York-Connecticut state boundary.

The high voltage direct current (“HVDC”) cable from Shoreham to New Haven (the “Cross Sound Cable” or “CSC”) was constructed under a firm transmission capacity purchase agreement (the “CSC Agreement”) signed between LIPA and Cross Sound Cable Company, LLC (“CSC LLC”) in 2000 under which LIPA agreed to purchase up to 330 megawatts of transmission capacity. The CSC is owned by CSC LLC. The CSC Agreement, as amended, expires in 2032. The CSC became operational in June 2004.

In September 2005, LIPA signed a 20-year firm transmission capacity purchase agreement with Neptune Regional Transmission System LLC (“Neptune”) to permit LIPA to import power from New Jersey over an undersea HVDC transmission cable (the “Neptune Cable”) capable of carrying 660 megawatts of electricity. The Neptune Cable is owned by Neptune, runs from Sayreville, New Jersey under the Atlantic Ocean and connects with LIPA at its Newbridge Road substation in Levittown. The cable became operational in July 2007.

### Capital Improvements

The following table sets forth actual capital expenditures for 2017 and 2018, as well as budgeted 2019 capital expenditures by category (and in thousands of dollars).

	<u>2017 Actual</u>	<u>2018 Actual</u>	<u>2019 Budget</u>
Transmission and Distribution	\$413,044	\$356,526	\$530,403
Information Technology	\$22,319	\$40,439	\$35,236
FEMA-Storm Hardening	\$182,996	\$151,384	\$153,609
Customer Operations & Other	\$39,177	\$42,209	\$95,494
NMP2	\$23,795	\$17,956	\$19,461
<b>Total</b>	<b>\$681,331</b>	<b>\$608,514</b>	<b>\$834,203</b>

### Loads

The Service Area is characterized by customer usage patterns and weather conditions that result in peak usage during the summer and relatively low annual load factors. The table below shows LIPA’s peak demand as experienced and after adjustments for weather-normalization, customer outages and emergency demand relief for the period 2014 through 2018.

<u>Year</u>	<u>Peak Demand (MW)</u>	<u>Weather Normalized (MW)</u>
2014	4,859	5,338
2015	5,049	5,285
2016	5,212	5,283
2017	4,945	5,218
2018	5,206	5,147

LIPA’s service provider prepares load growth forecasts annually. PSEG Long Island’s estimate of annual peak demand within the Service Area shows annual compound growth of approximately 0.7 percent over the five-year period from 2019 to 2023 (prior to adjustment for various demand side programs such as energy efficiency and renewables). This growth rate would increase LIPA’s summer peak demand, prior to the effects of cogeneration, NYPA supplied load and demand side management, to approximately 5,643 MW in 2023 on a weather-normalized basis. However, after adjustment for various demand side programs such as energy efficiency and renewables, LIPA’s summer peak demand is expected to decline over the 2019 to 2023 period. See “POWER SUPPLY – Market Energy Purchases” below.

### Power Supply

LIPA expects to rely on existing power supply resources, additional purchases, energy efficiency and demand side management programs to meet its capacity and energy requirements from 2019 through 2023. During 2018, LIPA’s 18% interest in NMP2 and its rights to the capacity of the GENCO Generating Facilities provided approximately 3,924 MW of generating capacity. Purchases, including on-Island IPPs and off-Island purchases from other suppliers, provided approximately 1,838 MW of additional capacity. In aggregate, these resources provided approximately 5,762 MW in 2018.

Reliability rules applied by the NYISO require LIPA to supply at least 103.5 percent of its forecast peak load to satisfy its Locational Capacity Requirement (“LCR”) from on-Island installed capacity (“ICAP”) resources (the “On-Island Requirement”).

#### *Outstanding RFPs*

In October 2013, the Authority issued an RFP for up to 280 MW of New, On-Island, Renewable Capacity and Energy (the “Renewables RFP”). On December 17, 2014, the Board adopted the staff recommendation for the Renewables RFP to commence negotiations for 11 photovoltaic contracts totaling 122 MW that would begin operation in late 2016 and beyond. Since then six projects totaling 63 MW gave notice of withdrawing their proposals due to permitting and site location issues. Four contracts have been executed, a 24.9 MW contract with Shoreham Solar Commons, 4 MW contracts with Kings Park Solar, and a 20 MW contract with Riverhead Solar 1. The Shoreham Solar Commons project began commercial operations on July 1, 2018. Kings Park Solar I and II began commercial operation on January 31, 2019 and Riverhead Solar 2 is expected to begin commercial operation by July 1, 2019.

In June 2012, the Board adopted a solar Feed-In Tariff (“Solar FIT I”) for up to 50 MW of solar projects connected to the Authority’s electric grid. In October 2013, the Board adopted a second Solar Feed-In Tariff (“Solar FIT II”) for up to 100 MW and a non-solar Feed-In Tariff (“Other FIT”) for up to 20 MW. Solar FIT I awarded approximately 43 MW of projects. As of the June 1, 2019, FIT I program is completely operational with 38.8 MW of projects. The Solar FIT II evaluation has been completed, approximately 82 MW of projects were selected. As of June 1, 2019, 23 projects totaling 31.97 MWs have executed power purchase agreements out of which 14 (19.1 MW) projects are in operation; 9 (12.87 MW) projects are under construction.

10.2 MW of proposals were selected for the non-solar Other FIT, three projects have withdrawn and three projects totaling 6.0 MW have executed a power purchase agreement.

In June of 2015, PSEG Long Island on behalf of the Authority issued the 2015 South Fork RFP. The intent of the RFP was to secure resources of conventional, renewable and load reduction technologies to support the South Fork electric system of Long Island. A total of 22 proposals were received from 16 Developers. The LIPA Board at its October 2017 meeting approved the selection of the LI Energy Storage System, LLC - Montauk Energy Storage System, LI Energy Storage System, LLC – East Hampton Energy Storage System, Deepwater Wind, LLC – Deepwater ONE South Fork and the AEG Load Reduction proposal. The AEG project was formalized in the form of an energy services agreement where the remaining three projects were formalized via power purchase agreements. In November 2018, the Board authorized negotiation to expand the Deepwater Wind project by an additional 40 MWs to a total of 130 MWs.

In December 2015, the Authority issued the 2015 Renewable RFP and on May 18, 2016, posted for public comment a Feed-in Tariff for Commercial Solar Photovoltaic Renewable Resources for up to 20 MW (“FIT III”) and a Fuel Cell Feed-in Tariff for up to 40 MW (“FIT IV”).

Responses to the 2015 Renewable RFP were received on June 22, 2016 and evaluation results were presented to the Board with the selection of two projects at the July 26, 2017 Board meeting. Power purchase agreement negotiations are underway for Riverhead Solar 2, a 36 MW solar project, and Long Island Solar Calverton, a 22.9 MW solar project. Both projects are currently undergoing environmental review. Upon contract negotiations and environmental process completion, the Board is expected to act on the power purchase agreements.

The Feed-in Tariffs, FIT III and FIT IV, were approved by the Board at the September 21, 2016 Board meeting. The evaluation of FIT III and FIT IV proposals, received by January 31, 2017, was subsequently presented to the Board at the July 26, 2017 Board meeting. As of June 1, 2019, FIT III has 36 projects (total 19.91 MW) comprising of 35 active projects totaling 19.51 MWs and one 0.4 MW project on hold. 19 projects totaling 10.12 MWs have executed power purchase agreements out of which one 0.9 MW project became operational. The FIT III program is at its capacity and five applications totaling 3.14 MW remain on waitlist. The program waitlist remains open until February 1, 2020 for additional projects. For FIT IV, three projects totaling 39.8 MW were selected to satisfy the 40 MW requirement. One 7.4 MW FIT IV project has executed a power purchase agreement.

## Existing Capacity and Energy Resources

The table below sets forth historical annual peak demands and energy requirements for the period 2014 through 2018.

	<b>Historical Loads and Resources</b>				
	2014	2015	2016	2017	2018
Annual Peak Demand (Summer) (MW) <sup>1</sup>	4,859	5,049	5,212	4,945	5,206
Capacity (MW) <sup>2</sup>					
Nuclear <sup>3</sup>	224	224	224	224	233
Purchased Capacity:					
GENCO					
GENCO Steam	2,364	2,356	2,339	2,351	2344
GENCO Other	1,315	1,330	1,349	1,351	1,347
Other LIPA Contracts					
Purchased Capacity <sup>4</sup>	1,979	1,909	1,870	1,881	1,838
Total Purchased Capacity	5,658	5,595	5,558	5,583	5,529
Total Capacity	5,882	5,819	5,782	5,807	5,762
Annual Reserve Margin:					
MW <sup>5</sup>	1,023	770	570	862	556
Percent	21.1%	15.3%	10.9%	17.4%	10.7%
Energy (MWh)					
Retail Requirements	20,785,497	21,060,517	20,963,562	20,195,715	20,773,082
Total Energy Requirements <sup>6</sup>	20,785,497	21,060,517	20,963,562	20,195,715	20,773,082
Generating Resources:					
Nuclear <sup>3</sup>	1,754,463	1,986,063	1,813,889	1,947,060	1,822,388
Purchased Energy:					
National Grid PSA					
Steam	4,386,671	4,880,721	4,331,645	3,172,789	4,300,133
Other	171,720	170,206	229,935	115,487	229,886
Total National Grid PSA	4,558,391	5,050,927	4,561,580	3,288,276	4,530,019
Other Purchased Energy	12,606,297	12,054,072	12,533,504	12,696,131	11,996,408
Total Purchased Energy	18,919,151	19,091,062	18,908,973	17,931,467	18,348,815
Total Energy	20,785,497	21,060,517	20,963,562	20,195,715	20,773,082

1 Includes LIPA retail sales and Long Island Choice. BNL Hydro excluded.

2 Summer Rating ("ICAP").

3 The actual generation attributable to LIPA's 18% ownership interest in NMP2. Facility output capacity increased in 2018.

4 Includes on- and off-Island resources under contract at time of peak, including but not limited to the resources of the contract.

5 Equal to Capacity less Demand.

6 Amounts shown for 2014 through 2018 include sales for resale, Long Island Choice, Grumman Campus and BNL Hydro.

## Power Supply Agreement

Pursuant to the PSA, GENCO supplies LIPA with the capacity of the GENCO Generating Facilities. These steam, combustion turbine, and internal combustion generating units operate using oil, natural gas, or both. The purchased energy section of the table above provides historical generation levels for the GENCO Generating Facilities for 2014 through 2018. The decline in generation from the GENCO Generating Facilities reflects displacement by more economic sources of generation, including off-Island purchases over submarine transmission cables. The PSA provides for approximately 3,700 MW on-Island capacity for the term of the agreement and provides LIPA with the option to ramp down all or a portion of the PSA units.

Under the PSA, LIPA pays GENCO certain fixed and variable rates for the generating capacity supplied by GENCO. LIPA and GENCO have agreed to a formula for the adjustment of these charges through the term of the

PSA. These rates are subject to the jurisdiction of FERC. The current rates were accepted for filing by FERC in May 2013. GENCO may request a rate reset under certain conditions.

GENCO's annual capital expenditures must be approved by LIPA. LIPA pays for approved GENCO capital expenditures through the depreciation accruals and return on investments in the rates for capacity charged under the PSA. The PSA also provides for certain penalties related to guaranteed performance levels by GENCO, including unforced capacity (i.e., capacity adjusted for forced outages) and efficiency levels (heat rate) of the generating facilities.

#### *Nine Mile Point Nuclear Unit 2*

LIPA owns an 18 percent interest in the 1,300 MW NMP2 nuclear unit on the Lake Ontario shoreline approximately 6 miles east of Oswego, New York. The other 82 percent is owned by Constellation Energy Nuclear Group, LLC ("CENG"), which is jointly owned by Exelon Corporation and EDF, a French company. LIPA is responsible for 18 percent of the unit's operation and maintenance, capital, and fuel costs, and is entitled to 18 percent of the electric energy produced and capacity provided by the unit.

NMP2 is one of two General Electric boiling-water-reactor units at the Nine Mile Point site. The other, Nine Mile Point Nuclear Unit 1, is entirely owned by CENG. NMP2 began commercial operation in August 1988, and its current operating license from the Nuclear Regulatory Commission ("NRC") extends through October 31, 2046. The unit is operated by Exelon Generation, a subsidiary of Exelon Corporation. An operating agreement between Exelon and LIPA specifies the mutual obligations of the two parties. NMP2's annual business plan and its operating and capital budgets are developed by Exelon, and submitted to LIPA for its review and approval. Exelon increased the capacity rating of the facility in 2018.

See "CERTAIN FACTORS AFFECTING THE ELECTRIC UTILITY INDUSTRY – Nuclear Plant Matters" herein for additional information pertinent to NMP2.

#### *Other Power Supply Agreements*

In addition to the generation subject to the PSA with GENCO described above, LIPA purchases approximately 1,900 MW of capacity from generation facilities on Long Island and elsewhere under various power supply agreements.

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The table below contains a summary of existing power supply agreements.

**Summary of Power Supply Agreements<sup>(1)</sup>**

<b>Unit Name</b>	<b>Summer Capacity (MW)</b>	<b>Contract Expiration</b>	<b>Unit Type<sup>(2)</sup></b>	<b>Primary Fuel Type</b>
<b>GENCO</b>				
Steam Turbine.....	2,332.1	2028	ST	Natural Gas <sup>(3,4)</sup>
Internal Combustion/Simple Cycle.....	1,344.5	2028	IC/SC	Natural Gas/Oil <sup>(4)</sup>
Huntington Resource Recovery.....	24.0	2022	ST	Refuse
Babylon Resource Recovery.....	14.6	2022	ST	Refuse
Hempstead Resource Recovery.....	72.8	2022	ST	Refuse
Islip Resource Recovery.....	8.3	2022	ST	Refuse
J-Power Shoreham.....	86.0	2020	SC	Oil <sup>(4)</sup>
National Grid Glenwood Landing.....	84.3	2027	SC	Natural Gas <sup>(3,4)</sup>
National Grid Port Jefferson.....	81.0	2027	SC	Natural Gas <sup>(3,4)</sup>
Bayswater Peaking Facility.....	53.5	2020	SC	Natural Gas <sup>(4)</sup>
Jamaica Bay Peaking Facility.....	55.1	2020 <sup>(5)</sup>	SC	Oil <sup>(4)</sup>
J-Power Edgewood.....	85.2	2023 <sup>(6)</sup>	SC	Natural Gas <sup>(4)</sup>
Bear Swamp <sup>(7, 11)</sup> .....	100.0 <sup>(1b)</sup>	2021	PS/Hydro	Water
Marcus Hook <sup>(11)</sup> .....	685.0 <sup>(1b)</sup>	2030	CC	Natural Gas
Calpine Bethpage 3.....	76.5	2025	CC	Natural Gas <sup>(4)</sup>
Hawkeye Greenport.....	51.9	2023 <sup>(9)</sup>	SC	Oil <sup>(4)</sup>
J-Power Pinelawn.....	75.5	2025	CC	Natural Gas <sup>(3,4)</sup>
Caithness.....	268.8 <sup>(1b)</sup>	2029	CC	Natural Gas <sup>(3,4)</sup>
Village of Freeport.....	10.0 <sup>(1b)</sup>	2034	SC	Natural Gas
NYPA Hydro Sale for Resale (BNL).....	15.0 <sup>(1b)</sup>	2020	HY	Water
Long Island Solar Farm (LISF).....	31.5 <sup>(1a)</sup>	2031	SL	Solar
Eastern Long Island Solar Project (ELISP).....	11.2 <sup>(1a)</sup>	2032	SL	Solar
Fitzpatrick.....	N/A <sup>(10)</sup>	2020	ST	Nuclear
Brookfield.....	N/A <sup>(10)</sup>	2019	HY	Water
PPL Energy Plus.....	N/A <sup>(10)</sup>	2019	IC	Landfill/Methane
Deepwater Wind.....	90.0 <sup>(12, 14)</sup>	2042 <sup>(13)</sup>	OSW	Wind
Long Island Energy Storage-East Hampton.....	5.0	2038	BAT	N/A
Long Island Energy Storage-Montauk.....	5.0	2038	BAT	N/A
Shoreham Solar Commons.....	24.9	2038	SL	Solar
Kings Park Solar 1.....	2.0	2039	SL	Solar
Kings Park Solar 2.....	2.0	2039	SL	Solar

Footnotes appear on the following page.

- (1) Summer capacity based upon summer 2018 Dependable Maximum Net Capacity (“DMNC”) test results
  - (a) LISF and ELISP are based on nameplate ratings.
  - (b) Represents portion of plant capacity sold to LIPA.
- (2) CC = Combined Cycle; ST = Steam; Cogen = Cogeneration; IC = Internal Combustion; SC = Simple Cycle; PS = Pumped Storage; HY = Hydro; SL = Solar; OSW = Offshore Wind; BAT = Battery.
- (3) Also capable of burning oil.
- (4) LIPA is responsible for fuel procurement.
- (5) Jamaica Bay contract extended to June 27, 2020.
- (6) J-Power Edgewood contract extended to October 31, 2023.
- (7) Reflects Unforced capacity (“UCAP”) stated in contract beginning June 2010.
- (8) Capacity only contract. No energy purchase.
- (9) Hawkeye Greenport contract extended to June 30, 2023.
- (10) Energy only contract.
- (11) LIPA has long term transmission contracts with Cross Sound Cable Company (330 MW, expires 2032) and Neptune Regional Transmission System (660 MW, expires 2027) which are used to deliver capacity associated with Bear Swamp and Marcus Hook facilities identified above, as well as deliver energy purchases from ISO-New England Inc. and PJM (a regional transmission organization operating a transmission grid running from Illinois to New Jersey and south to Virginia, respectively).
- (12) Facility has not achieved Commercial Operation. Capacities shown are projected Project Capacities from respective Power Purchase Agreements.

- (13) Facility under development. Expiration date based on 20 years from planned commercial operation date.  
(14) Board approved negotiation of a potential increase to 130 MW.

### Short-Term Capacity Purchases

In addition to the resources described above, LIPA relies on short-term, firm capacity purchases from the NYISO “Rest of State” market to meet a portion of its total statewide capacity requirements. LIPA anticipates the need to continue to make additional capacity purchases. Such purchases are accomplished through solicitations, auctions and/or bilateral arrangements. PSEG ER&T, a PSEG Long Island affiliate, estimates the requirement and timing of these capacity purchases on LIPA’s behalf.

### Market Energy Purchases

In addition to energy purchased under the terms of the agreements described above, LIPA routinely purchases energy in the day-ahead and real-time markets operated by the NYISO, ISO-NE and PJM (described below). These purchases are generally made when the price of energy from these sources is below the incremental cost of generation from LIPA’s contracted resources.

The tables below summarize estimated demand and energy requirements for the period shown. During this period, annual peak demands and energy requirements, after adjustment for various demand side programs, are estimated to decrease at annual compound rates of approximately 0.1 percent. The estimated demand and energy requirements in the tables below incorporate the effects of LIPA’s Long Island Choice program, and reflect the results of resource planning assessments conducted by PSEG Long Island. Such information is not intended to represent resource-specific power supply expansion plans adopted by the Authority. The information in the table below is presented on an unforced capacity basis to conform to the requirements of NYISO. Historical data throughout this ADR has been presented on an ICAP basis to be consistent with prior years. It is anticipated that the Authority will migrate to the UCAP basis as such information becomes available. ICAP is a measurement of a generating unit’s maximum output under certain defined test conditions without considering the impact of forced outages. UCAP is a related measure that takes a generating unit’s ICAP and reduces it based on the proportion of a generating unit’s historic output that was not available due to forced outages.

#### Estimated Capacity Requirements and Resources (UCAP) (MW)

	2019	2020	2021	2022	2023
<b>System Demand</b>					
Net LIPA Load <sup>1</sup>	5,214	5,108	5,031	5,010	4,944
plus: Transmission Loss Adjustment <sup>2</sup>	40	40	40	40	40
net: LIPA Load with Losses	5,254	5,148	5,071	5,050	4,984
Required Reserve Margin <sup>3</sup>	353	346	341	339	335
Total Capacity Requirement	<u>5,607</u>	<u>5,494</u>	<u>5,412</u>	<u>5,389</u>	<u>5,319</u>
<b>Resources (UCAP)</b>					
Nine Mile Point 2	230	230	230	230	230
GENCO <sup>4</sup>	3,426	3,426	3,426	3,426	3,426
Additional Contract Generation <sup>5</sup>	1,014	906	833	715	663
UCAP Net Purchases/(Sales) <sup>6</sup>	937	932	923	1,018	1,000
Total Capability	<u>5,607</u>	<u>5,494</u>	<u>5,412</u>	<u>5,389</u>	<u>5,319</u>
Reserve Margin	<u>106.72%</u>	<u>106.72%</u>	<u>106.72%</u>	<u>106.72%</u>	<u>106.72%</u>

Footnotes appear on the following page.

<sup>1</sup> Based on 2019 Gold Book. Zone K Net Peak Load reflects reductions for Energy Efficiency, Renewables & Load Modifiers.

<sup>2</sup> NYISO Off-Island Transmission Loss Adjustment factor for LIPA.

<sup>3</sup> NYISO Required Reserves estimated 106.72% UCAP (117% ICAP equivalent) for May 2019 (as of May 2019).

<sup>4</sup> National Grid covered under the PSA.

- <sup>5</sup> Includes Combined Cycle units - Pinelawn Power, Calpine Bethpage 3 & Caithness, Fast Track GT's - Glenwood Landing, Port Jefferson, Shoreham, Edgewood, Far Rockaway, Greenport, Freeport: IPP's – Hempstead Resource Recovery, Huntington Resource Recovery, Babylon Resource Recovery, Islip Resource Recovery, & LI Solar Farm.
- <sup>6</sup> UCAP purchases, including Bear Swamp and Marcus Hook, net of short-term UCAP sales.

<b>Estimated Energy Requirements and Resources<sup>1</sup></b>					
<b>(GWH)</b>					
	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>
<b>Energy Requirements</b>					
Total Energy Requirements <sup>2</sup> .....	20,154	20,005	19,883	19,864	19,672
<b>Resources<sup>3</sup></b>					
NMP2 .....	1,985	1,871	1,986	1,986	1,849
GENCO <sup>4</sup> .....	3,923	4,137	3,489	2,860	2,506
Contracted power purchase agreements <sup>5</sup>	3,271	2,923	3,095	2,772	3,033
Non-Dispatchable IPP Resources .....	893	943	933	942	853
BNL HYDRO and Recharge NY .....	500	500	500	500	500
Existing and Future Load Modifiers <sup>6</sup>	1,104	1,007	815	633	632
Future Resource Additions <sup>7</sup> .....	40	59	178	219	578
Net Economy <sup>8</sup> .....	8,439	8,565	8,888	9,533	9,721
Total Resources .....	20,154	20,005	19,883	19,864	19,672

- <sup>1</sup> Based on final 2019 LIPA Budget.
- <sup>2</sup> LIPA's estimated Total Energy Requirements including Long Island Choice customers. Source: LIPA Forecast of Electric Requirements, Sales and Peak Loads: 2018-2028 as of September 5, 2018 for 2019-2023.
- <sup>3</sup> Includes the estimated GWH output of both the existing and future resources expected to be under contract to LIPA during each year of the projected period and spot market energy purchases. Values based upon final 2019-2023 LIPA Operating Budget.
- <sup>4</sup> Generating units covered under the PSA.
- <sup>5</sup> Power purchase agreements under contract (including emergency generators in Montauk and East Hampton). When contracts expire, it is assumed the energy is available in the Net Economy market.
- <sup>6</sup> Reflects existing and future load modifiers: future solar Feed In Tariffs, FIT1, FIT2, FIT3, Fuel Cell. Also includes Bear Swamp, BP Solar, Shoreham Solar Commons, and Contracted Renewables across Inter-Ties.
- <sup>7</sup> Reflects the estimated energy output from the Resource Additions expected to be placed into service during the projected period.
- <sup>8</sup> Short term purchases net of short term sales.

## Cybersecurity

It is the Board's policy to ensure that customers in the Service Area receive a safe and reliable supply of electricity. Further, it is the Board's policy to protect customer information from unauthorized access, use, disclosure, modification or destruction through the adoption of appropriate policies and procedures. Consistent with these policies, the Authority works with PSEG Long Island, CENG, GENCO and other power suppliers, the State and other interested parties to ensure that information management and security practices are in place to safeguard and protect data, information and assets from inappropriate use, improper disclosure and unauthorized release. In addition, pursuant to the terms of the OSA, PSEG Long Island is obligated to comply with any safety and security policies and procedures of the Authority disclosed to it and all requirements of applicable law, regarding data security, cyber security and information security.

## Fuel Supply

LIPA procures the fuel used at the GENCO Generating Facilities and certain non-GENCO facilities under the terms of its generation agreement(s). PSEG ER&T provides fuel management services for both the GENCO generating facilities and certain non-GENCO units.

The fuel used for generation will depend on generation plant fuel capability, fuel supply, fuel price, transportation cost and availability, and environmental constraints. All the GENCO baseload steam units are dual fuel

(can burn either natural gas or low sulfur residual oil). Dual fuel units can switch fuels based on overall most favorable economics.

The natural gas distribution system on Long Island shares natural gas delivery interconnections with neighboring gas utilities and interstate gas pipelines. Con Edison and two National Grid Subs have signed an agreement that provides for use of their joint systems to allow the parties to receive gas from interstate pipelines connected to their systems.

Oil is stored on site or at locations accessible by each generation facility with the capacity to burn oil. Existing oil storage capacity plus an active oil management program is employed by the applicable service providers for continuous fuel oil supply to the GENCO Generating Facilities and certain other non-GENCO generating units.

Constellation is responsible for the fuel requirements of NMP2.

## **Overview of Regulatory Framework as it Applies to LIPA**

### *LIPA's Provision of Transmission Service to Third Parties*

As a corporate municipal instrumentality and political subdivision of the State, the Authority, and, indirectly, LIPA, are not considered "public utilities" under the Federal Power Act ("FPA") and therefore are largely exempt from FERC regulation under Part II of the FPA. Notwithstanding this exemption, the Authority and LIPA are subject to the authority of FERC to order interconnection of its facilities under Section 210 of the FPA, and the authority of FERC to order "transmitting utilities" to provide transmission services under sections 211 and 212 of the FPA as amended by the 2005 Energy Policy Act (as defined below). Further, FERC applies its "open access" principles from Order No. 888 and its progeny to non-jurisdictional utilities, through a reciprocity requirement (described below).

On April 24, 1996, FERC issued Order No. 888. As that order was modified on rehearing, it (i) requires all public utilities to have a tariff on file with FERC that provides open access transmission services to other entities under comparable terms and conditions of transmission service that the public utility provides to itself and its affiliates and (ii) contains a reciprocity provision that requires non-jurisdictional utilities (including municipal and consumer-owned utilities such as LIPA and the Authority) that purchase transmission services under FERC filed open access tariffs and that own or control transmission facilities to provide open access service to the transmitting utility on rates, terms and conditions that are comparable to the service that the non-jurisdictional utility provides itself. In 1998, FERC reviewed LIPA's Open Access Transmission Tariff ("OATT"), including its rates for transmission service, and found that the OATT represents an acceptable reciprocity tariff subject to the condition that LIPA adopt a code of conduct and maintain an Open Access Same-time Information System ("OASIS"). While LIPA has retained a reciprocity OATT, transmission service over LIPA's system occurs primarily through its participation in the NYISO, including offering of transmission service under terms set forth in the NYISO OATT and engagement in the NYISO regional transmission planning process.

The rates that LIPA charges for wholesale transmission service, including the calculation of any stranded cost charge, are not subject to direct regulation by FERC under Sections 205 or 206 of the FPA. LIPA's rates for wholesale transmission service are set by the Authority and incorporated for informational purposes into the NYISO OATT.

On July 21, 2011, FERC issued Order No. 1000 to expand upon certain regional planning principles of Order No. 890. Order No. 1000 establishes a framework for developing large regional transmission planning groups, requires sharing information between such regional transmission planning groups to enable the development of needed "interregional" transmission facilities, and requires the regional transmission planning groups to develop methodologies for allocating the costs of new transmission facilities identified through such regional and interregional transmission planning efforts. Public utilities, including the NYISO, developed changes to their planning processes to integrate the Order 1000 reforms (described below).

As part of the Energy Policy Act of 2005 (the "2005 Energy Policy Act"), Congress amended the FPA to include a new Section 211A which grants FERC limited discretionary authority (but does not mandate the exercise of

such authority) over certain non-jurisdictional utilities called “unregulated transmitting utilities.” The term “unregulated transmitting utility” is defined as an entity that owns or operates facilities used for wholesale transmission service in interstate commerce and is an otherwise exempt entity under Section 201(f) of the FPA. LIPA meets this definition and will be an unregulated transmitting utility should FERC ever apply Section 211A to LIPA.

While FERC may apply the terms of Section 211A to LIPA and other unregulated transmitting utilities case-by-case, it is unclear whether such application would fundamentally change LIPA’s provision of wholesale transmission service. LIPA already provides open access transmission service to third parties on a comparability basis through its participation in the NYISO as described below. Further, LIPA maintains its own reciprocity OATT, voluntarily complies with FERC’s Standards of Conduct and OASIS requirements and operationally and administratively ensures comparability in interconnection service to generators.

## **New York Independent System Operator**

### *General*

The investor-owned utilities in the State, with NYPA and LIPA (collectively, the “Transmission Owners”), are members of an independent transmission system operator called NYISO. NYISO is a not-for-profit corporation formed to provide for non-discriminatory open-access transmission over electric transmission systems belonging to the Transmission Owners, to maintain the reliability of the combined systems and to administer electric power markets within the State. Customers of NYISO pay non-transmission related charges to NYISO and pay the Transmission Service Charge (“TSC”) to the Transmission Owners under the NYISO OATT. LIPA participates in the NYISO under provisions designed to protect the Authority’s tax-exempt status and which recognize that the Authority, not FERC, is the entity with jurisdiction to set LIPA’s rates. LIPA remains the entity responsible for billing and collecting its TSC for its transmission facilities under rates set by the Authority under State law. Further, LIPA retains ownership and operational control over its transmission facilities while coordinating the scheduling, maintenance and use of LIPA’s transmission system with the NYISO.

In addition to its transmission-related responsibilities, the NYISO provides power pooling and power coordination functions. Operational features of the NYISO include: (i) the establishment of a day-ahead and real-time bid-based spot energy market; (ii) the implementation of congestion pricing for transmission services; (iii) the creation and administration of transmission congestion contracts; (iv) the administration of a capacity market; (v) markets for certain ancillary services; and (vi) long-term planning for reliability, economic and public policy matters. A significant feature of the NYISO’s tariffs is its administration of an electric power market that uses a locational based marginal pricing structure.

LIPA receives payments for use of its transmission system by third parties through the billing and collection of its TSC and contractual payments under certain grandfathered transmission agreements between LIPA and third parties. For non-grandfathered contracts, LIPA directly bills the TSC, a per kilowatt-hour charge, to transmission customers withdrawing energy from the LIPA System, and collects the TSC revenue directly from the customers. LIPA’s TSC is developed based upon a formula rate, which was approved by LIPA’s Board in September 2003.

As a condition of LIPA’s participation in the NYISO and to recognize LIPA’s non-jurisdictional status, the NYISO OATT includes provisions that allow the NYISO to file, on LIPA’s behalf, LIPA’s TSC for inclusion in the NYISO OATT on an informational basis only. FERC limits its review of LIPA’s TSC to a comparability review by which it only reviews whether the TSC rates that LIPA is charging are applied to all transmission customers, including LIPA itself, on a comparable basis.

### *NYISO Compliance with Orders 890 and 1000*

Order 890, as modified on rehearing, required the NYISO to adopt a transparent, regional transmission planning process that includes all stakeholders in the State and neighboring, interconnected regions. LIPA voluntarily participated in developing the NYISO’s compliance filings covering implementation of most elements of Order 890. During 2007 and 2009, FERC approved NYISO proposals covering the development, cost-recovery and cost-allocation of reliability and economic transmission upgrade projects. These proposals included provisions recognizing

the Authority's role in transmission planning for the Service Area and its jurisdiction over LIPA's rates. Most of the other changes to the OATT included in Order No. 890 do not substantially affect the provision of transmission service by the NYISO because of its "financial transmission rights" rather than "physical transmission rights" structure.

As part of the Order 890 process, FERC also approved changes to the New York Independent System Operator/Transmission Owner Reliability Agreement (the "NYISO/TO Reliability Agreement") which permits the NYISO to require transmission owners to make transmission reliability upgrades subject to certain transmission owner rights and conditions. The NYISO/TO Reliability Agreement provides cost-allocation and cost-recovery assurance to the transmission owners regarding the construction of reliability projects identified as part of the NYISO's planning process.

As part of developing this NYISO/TO Reliability Agreement, LIPA sought and gained inclusion of several key terms intended to protect LIPA's status as a non-jurisdictional utility and its ability to maintain and issue tax-exempt debt. These conditions include: (i) a provision that LIPA does not have to build a project if the construction or use of such project would violate the tax-exempt status of its bonds; (ii) clarification that LIPA's execution of the NYISO/TO Reliability Agreement is not considered a waiver of LIPA's non-jurisdictional status under the FPA; and (iii) procedures by which LIPA may withdraw from the NYISO/TO Reliability Agreement upon 90-days' notice subject to any specific obligation it may have already incurred prior to the date of withdrawal. On January 25, 2010, the Board approved a resolution authorizing the execution and implementation of the terms of the NYISO/TO Reliability Agreement by LIPA.

Order 1000 (described above) required modifications to the NYISO regional transmission planning process, including the adoption of new cost allocation procedures for projects addressing transmission needs caused by public policy requirements and measures for allocation of costs for inter-regional (i.e., inter-ISO) projects. Under Order 1000, NYISO has adopted changes to its OATT that incorporate the assessment of transmission needs driven by public policy requirements into the NYISO transmission planning process. As part of these changes, the NYISO proposed, and FERC has approved, language detailing the process by which the Authority exercises its statutory responsibility for transmission planning within the Service Area to identify transmission needs on the LIPA transmission system that may be driven by public policy requirements and integrating such transmission needs into the NYISO's public policy requirements planning process.

Order 1000 also includes requirements for interregional planning between regions. FERC has approved a joint NYISO, PJM and ISO-NE interregional planning coordination program. As approved, any interregional planned project must be jointly identified by both ISOs and there must be an agreed-upon allocation of costs between both ISOs.

### *Generator Interconnection Rule*

FERC has established rules requiring all public utilities that own, operate or control transmission facilities to file standard procedures and standard agreements governing interconnection services for "large" generators producing over 20 MW (Order No. 2003 & Order No. 2003-A—Large Generator Interconnections) and for "small" generators producing less than 20 MW (Order No. 2006, Order No. 2006-A & Order No. 2006-B—Small Generator Interconnections). The NYISO OATT includes Large Generation Interconnection Procedures and a Large Generation Interconnection Agreement consistent with Order Nos. 2003 and 2003-A and Small Generation Interconnection Procedures and a Small Generation Interconnection Agreement consistent with Order Nos. 2006, 2006-A and 2006-B. As LIPA is not a "public utility" under the FPA, it has no direct obligation to comply with the Commission's interconnections procedures. However, as part of its participation in the NYISO, LIPA voluntarily complies with the NYISO's generator interconnection procedures for interconnections at the transmission system level. LIPA continues to administer the interconnection process for all generators connecting to its distribution facilities under its own tariff and procedures. LIPA also has adopted revisions to its own generator interconnection procedures to be complementary to the NYISO process.

Recently, FERC issued Order No. 845, "Reform of Generator Interconnection Procedures and Agreements," and the related rehearing order, Order No. 845-A, which adopts changes primarily focused on facilitating the integration of renewable resources and otherwise streamlining the interconnection review and authorization process. Most notably, as a part of this proceeding, FERC has adopted a rule permitting interconnection customers to exercise

an option to build any required interconnection facilities and stand-alone network upgrades to the transmission provider's system. On May 22, 2019, NYISO submitted a compliance filing to FERC to revise its governing interconnection rules in accordance with these orders and requested that they become effective within 60 days of a FERC order accepting the NYISO's proposed revisions. FERC has not yet approved the NYISO's filing. LIPA has been monitoring the NYISO's development of this compliance filing and has participated in the proceedings.

### **PJM Independent System Operator and Allocation of PJM Regional Transmission Expansion Project Costs**

LIPA has contracted with Neptune to purchase 660 MW of transmission capacity over an undersea extra high voltage cable installed between Sayreville, New Jersey and Levittown, New York. Beginning in June 2010, LIPA also has a contract with Marcus Hook LLP to purchase 91% of the capacity of the Marcus Hook generating facility in Pennsylvania.

PJM, a regional transmission organization operating a transmission grid running from Illinois to New Jersey and south to Virginia allocates the costs of "Regional Transmission Expansion Plan" projects ("RTEP") based on cost allocation protocols. These costs are allocated to merchant transmission facilities, such as Neptune, which have obtained firm transmission withdrawal rights under the PJM Tariff. Neptune passes through to LIPA any RTEP charges assessed to the firm transmission withdrawal rights for capacity over the Neptune Line.

### **New York State Reliability Council**

The New York State Reliability Council, LLC ("NYSRC") determines the reliability rules that the NYISO and all market participants must operate under and monitors the NYISO's compliance with the reliability rules. The NYSRC provides reliability guidance consistent with the reliability regulation adopted by Congress in 2005 in Section 215 of the FPA, discussed above under "THE SYSTEM—Overview of Regulatory Framework as it Applies to LIPA—*LIPA's Provision of Transmission Service to Third Parties.*"

## **CERTAIN FACTORS AFFECTING THE ELECTRIC UTILITY INDUSTRY**

### **General**

The electric utility industry has been, and will be, affected by several factors which will affect the business, operations and financial condition of both public and private electric utilities, including the Authority and LIPA. Such factors include, (i) effects of compliance with rapidly changing environmental, safety, licensing, regulatory and legislative requirements, (ii) changes resulting from "self-generation," energy efficiency, conservation and demand-side management programs to the timing and use of electric energy, (iii) changes in state and national energy policy, (iv) new requirements to obtain increasing portions of overall electric energy supply from renewable generating resources, (v) potential imposition of requirements to reduce emissions of greenhouse gases, (vi) issues relating to the ability to issue tax-exempt obligations, (vii) service restrictions on the ability to sell to non-governmental entities electricity from generation projects financed with outstanding tax-exempt obligations, (viii) changes in projected future load requirements, and (ix) increases in costs. These factors (and other factors) could affect the financial condition of any electric utility and likely will affect individual utilities in different ways.

The Authority cannot predict what effects these factors will have on the business, operations and financial condition of the Authority or LIPA, but the effects could be significant. The sections of this caption briefly discuss certain of these factors. However, these discussions are not comprehensive or definitive, and these matters are subject to change after the date of this ADR. Extensive information on the electric utility industry is, and is expected to be, available from legislative and regulatory bodies and other sources in the public domain.

### **FERC Enforcement and Penalty Authority Under the 2005 Energy Policy Act**

The 2005 Energy Policy Act specifically modified certain long-standing exemptions from FERC jurisdiction for municipalities under FPA Section 201(f) (such as the Authority and LIPA) by clarifying that such entities are subject to FERC's jurisdiction to enforce reliability rules (FPA § 215) and market manipulation rules (FPA § 222). On March 18, 2010, as revised on September 17, 2010, FERC issued civil penalty guidelines, which purport to apply

to “the penalties to be imposed on all organizations for violations of the statutes, rules, regulations, restrictions, conditions, or orders overseen by FERC.” FERC’s use of the Penalty Guidelines is discretionary, not mandatory. These Penalty Guidelines have resulted in higher penalties being imposed by FERC, particularly where a violation causes a significant pecuniary gain for the violator or loss caused by the violation. The revised Penalty Guidelines provide substantial discretion to consider mitigating factors such as the measures taken by the violator to put measures in place to comply with all requirements.

While municipalities are now subject to compliance obligations and potential FERC enforcement actions, including sanctions for violations of reliability standards, there remains an unresolved legal question on whether FERC has sufficient statutory authority under those sections of the FPA to impose monetary civil penalties on municipalities for such violations. Sections 316 and 316A of the FPA limit the Commission’s authority to apply civil penalties for statutory and rules violations only to “persons,” which is a term defined under the FPA to exclude municipalities. The specific application of monetary civil penalties to municipalities has not yet been the subject of a challenge, but FERC has reached enforcement settlements, in which civil penalties were assessed, with a California irrigation district (which was established under California state law) and an Oklahoma power authority. However, in August 2014, the DC Circuit Court of Appeals reversed a FERC penalty imposed on a federal government power marketing agency, and held that FPA sections 316 and 316A did not effect unequivocal waiver of the federal government’s sovereign immunity from monetary penalties. Future cases before FERC may challenge the statutory limits of FERC’s authority, if any, to impose monetary civil penalties on municipalities and courts of appeal may clarify the extent of FERC’s authority to do so.

The foregoing discussion of certain provisions of the 2005 Energy Policy Act is not a comprehensive discussion of the 2005 Energy Policy Act. Information on the 2005 Energy Policy Act is available from many sources in the public domain, and investors should obtain and review such information.

## **Competition**

In the State and many other states, there have been legislative and regulatory actions to promote competition in the supply of power by requiring the separation of power supply services and costs from electric transmission and distribution services and costs.

The Authority has taken several actions to promote an orderly transition to greater competition in power supply and retail customer choice in the power supply markets in the Service Area. The Authority fosters wholesale competition by offering Open Access Transmission Service to generators that wish to provide power to the NYISO or to other wholesale customers. This service is offered on a comparable basis to the regulated transmission utilities in the State that are also members of the NYISO. Retail choice (sometimes called customer choice, retail wheeling, or retail open access) refers to a process by which retail customers choose among competitive suppliers for electric capacity, energy, and ancillary services. The delivery of capacity and energy is provided by the owner and operator of the local transmission and distribution system. Key issues that have surfaced in the movement to retail choice include the level of rate reductions accompanying restructuring individual utilities, recovery of stranded investments, and the timetable and methods for implementation of customer choice.

Under current law, customers may purchase energy from third party providers. In 1998, the Authority adopted a retail choice program (called “Long Island Choice”) which offers electric customers the opportunity to choose an electric energy supplier other than LIPA. The program is available to all customers in the Service Area. As of April 2019, other suppliers were selling electricity to 10,873 customers in the Service Area representing a total coincident peak load of 285 MW. PSEG Long Island and the Authority began a “collaborative” review of the Long Island Choice program organized by the DPS and with the participation of other interested parties in 2016. At calendar year end 2015, the DPS initiated “MATTER 15-02754 – In the Matter of Examining the Potential Benefits of Retail Competition for Long Island Electric Customers,” which invited comments on the potential benefits to customers of retail competition in the Long Island electricity market. According to the DPS, its objective in the proceeding is to investigate potential benefits to customers and examine what reforms, if any, are needed to achieve them. On May 18, 2016, the DPS provided that the comment period established in the Long Island participatory process is extended until 30 days after the resolution of matters raised in the Order Resetting Retail Energy Markets and Establishing Further Process, issued by the PSC on February 23, 2016 in Cases 15-M-0127, 12-M-0476 and 98-M-1343 (the “Regulated Utilities Retail Choice Proceedings”). The Regulated Utilities Retail Choice Proceedings are

still pending, having been delayed by litigation. However, on May 9, 2019, the New York State Court of Appeals issued a decision holding that the PSC may cap Energy Service Companies' ("ESCO") prices so that they do not exceed those charged by public utilities, unless 30% of the energy is derived from renewable resources (see *National Energy Marketers Association v. New York State Public Service Commission*, 2019 WL 2030266 (2019)). The Authority cannot make a prediction as to the resolution of the Regulated Utilities Retail Choice Proceedings or effect, if any, new or revised State or federal laws addressing retail and commercial competition will have on ongoing implementation of retail competition. The enabling legislation for the New York State budget passed April 1, 2019, included the repeal of the sales tax exemption under New York Tax Law §1105-C on the sale of transportation, transmission, or distribution of gas and electricity where it is sold separately from the commodity. As a result, effective June 1, 2019, non-residential customers purchasing from energy service companies must now pay sales tax on the unbundled delivery portion of their bill. This change may result in declining customer participation in retail choice programs statewide, including the Authority's Long Island Choice program.

## **New York State Electric Utility Industry Regulation**

*General.* Legislation is regularly introduced in the State Legislature, which could affect the operations of the Authority. The Authority cannot predict which of such legislation might be enacted into law, what form any of such legislation, if enacted, might take or what impact any of such legislation if enacted might have on the Authority's operations.

*NYISO.* For a description of the NYISO and its present activities, see "THE SYSTEM – New York Independent System Operator" herein.

### *Reforming the Energy Vision and the Clean Energy Standard.*

In April 2014, the PSC commenced its REV initiative to transform the State's energy industry and regulatory practices. Reports and additional REV information are available from the DPS, which is the staff arm of the PSC, at <http://www.dps.ny.gov/>. Information on that website is not included herein by specific cross-reference. See "RECENT DEVELOPMENTS – *Reforming the Energy Vision, Clean Energy Standard, the Zero-Emissions Credit Requirement and the Climate Leadership and Climate Protection Act*" for additional information relating to REV and certain other State energy initiatives.

In addition, in January 2016, the PSC approved the 10-year \$5.3 billion Clean Energy Fund (the "CEF") to be managed by NYSERDA under the direction of the PSC. The CEF has four portfolios: market development (to reduce costs and accelerate customer demand for energy efficiency and other behind-the-meter clean energy solutions, and increase private investment); innovation and research (to invest in cutting-edge technologies that will meet increasing demand for clean energy); NY Green Bank (to partner with private financial institutions to accelerate and expand the availability of capital for clean energy projects) and NY-Sun (to provide long-term certainty to the State's growing solar market and to lower the costs for homeowners and businesses investing in solar power).

While the Authority is not a regulated utility subject to the PSC's jurisdiction, it has been monitoring, and expects to continue to monitor, the REV proceeding closely and review and evaluate orders put forth by the PSC and implemented by the investor-owned utilities to develop and recommend a plan of action by the Authority consistent with REV goals and objectives. The Authority cannot predict the outcome of the REV proceeding or related proceedings or their impact on the business, operations or financial condition of the Authority.

*Public Authorities Reform.* The Public Authorities Accountability Act of 2005 (the "PAAA") was signed into law in January 2006. The PAAA addressed a wide range of matters pertaining to many public authorities in the State, including the Authority. In December 2009, the Governor signed into law additional legislation (the Public Authorities Reform Act – "PARA") intended to further reform the way public authorities conduct business in the State. PARA creates an independent authorities budget office with certain oversight powers and expands on the filing and publication requirements of the PAAA.

## **Environmental**

Electric utilities are subject to rapidly changing environmental regulations. Federal, state and local standards and procedures, which regulate the environmental impact of electric utilities, are subject to change in interpretation and enforcement. These changes may arise from continuing legislative, regulatory and judicial actions regarding such standards and procedures. There is no assurance that the facilities owned or under contract to LIPA will remain subject to the regulations currently in effect, will always be able to comply with future regulations or can always obtain all required operating permits. An inability to comply with environmental standards could cause additional capital expenditures to comply, reduced operating levels or the complete shutdown of individual electric generating units (“EGUs”), including NMP2 and other units under contract to LIPA under the PSA, not in compliance.

The EPA, the states and local jurisdictions may enact new regulations governing emissions from many types of power plants. State regulation of electric utility emissions may change significantly. The changes could affect the cost of purchased power from combustion turbines and other types of plants. If enacted, new regulations may change existing cost assumptions for electric utilities. While it is too early to determine if any new requirements will be imposed, in what form, or what their effect will be, the changes may have a material impact on the cost of power generated at affected EGUs. See also “ENVIRONMENTAL MATTERS” herein.

### *Cross-State Air Pollution Rule*

The EPA adopted the Transport Rule (also referred to as the Cross-State Air Pollution Rule (“CSAPR”)) on February 26, 2016. The rule established a new cap-and-trade program requiring greater reductions in SO<sub>2</sub> and NO<sub>x</sub> air emissions than those required by the 2005 Clean Air Intra-state Rule (“CAIR”) that it replaced. In December 2015, the New York State Department of Environmental Conservation (“DEC”) adopted its final rules repealing its NO<sub>x</sub> ozone season and annual trading programs and SO<sub>2</sub> trading programs under CAIR to replace them with new rules to allocate allowances as created by CSAPR for EGUs. In 2018, under CSAPR, DEC (i) allocated allowances based on the average of the last three years for which data are available to existing 25 megawatt or larger EGUs, (ii) set aside 5% of the budget for new EGUs, and (iii) provided the remaining 10% of allowances to NYSERDA to promote energy efficiency and renewable energy technologies.

On February 27, 2019, DEC issued for public comment a proposed regulation to be codified at 6 NYCRR Subpart 227-3, titled “Ozone Season Oxides of Nitrogen (NO<sub>x</sub>) Emission Limits for Simple Cycle and Regenerative Combustion Turbines.” If adopted, the proposed regulations would significantly lower allowable NO<sub>x</sub> emissions from simple cycle and regenerative combustion turbines starting in 2023. The proposed regulation provides several compliance options, including the ability to average a facility’s emissions with nearby electric storage or renewable generation facilities. The proposed regulation would impact legacy combustion turbines totaling 1,345 MW in capacity that the Authority has under contract with National Grid under the PSA. The Authority and National Grid will be evaluating the available compliance options, which may include retrofitting some units with emission control technology, as well as replacing the capacity of units that cannot comply with the regulation. The draft regulation requires a compliance plan to be submitted to DEC by March 2020.

### *Climate Change*

In recent years, state, national and international scientific reports about the contribution of human activities to the changing of the Earth’s climate have raised concerns among policymakers and the general public about the risks of climate change, which include greater vulnerability of the energy system to increased severity and frequency of weather events and other climate change impacts. Policies proposing to reduce and prevent climate change risks generally include measures to reduce emissions of CO<sub>2</sub> and other greenhouse gas (“GHG”) into the atmosphere with the goal of eliminating such emissions entirely within decades.

The federal and state governments have increased focus on regulating CO<sub>2</sub> and other GHG emissions from power plants. EPA’s authority to regulate GHG emissions stems from a 2007 United States Supreme Court decision which determined that GHG emissions are “air pollutants” under the federal Clean Air Act (“CAA”). EPA has begun regulating the energy sector by: (i) mandating GHG reporting as of 2011; (ii) establishing a nationwide New Source Performance Standard (“NSPS”) for CO<sub>2</sub> emissions from new fossil-fired EGUs pursuant to CAA § 111(b); and (iii) addressing GHGs from existing EGUs pursuant to CAA § 111(d) as discussed below.

## Clean Power Plan

On August 3, 2015, the EPA issued the Clean Power Plan final rule (“CPP”). The CPP regulates CO<sub>2</sub> emissions from existing fossil fuel-fired EGUs, specifically coal-, oil-, and gas-fired steam generating units and natural gas combined cycle units. Several states and industry groups sued, challenging the CPP in the D.C. Circuit and, on February 9, 2016 the U.S. Supreme Court stayed the implementation of the CPP pending the outcome of the lawsuits. The D.C. Circuit has held the lawsuits in abeyance since April 28, 2017 at the request of the EPA. The CPP would not directly regulate the permissible CO<sub>2</sub> emissions from any particular EGU; instead, each state is given an overall emissions reduction target expressed as a rate (pounds of CO<sub>2</sub> per MWh of output). This target can also be translated into a mass-based goal, with a numerical cap on the permissible short tonnage of CO<sub>2</sub>. Each state would have the responsibility for identifying and implementing measures to meet its EPA-established goal. Under the CPP, the State would need to meet its overall emissions goal of 918 pounds of CO<sub>2</sub> per MWh of output – approximately a 19.5% reduction from 2012 levels – by 2030. Prior to the final 2030 goal, the State would also have interim period targets, as shown below.

### New York Statewide Emission Goals Under CPP Final Rule

	Rate-based (pounds CO <sub>2</sub> /MWH)	Mass-based (tons of CO <sub>2</sub> )
<b>2012 Emissions</b>	1,140	34,596,456
<b>CPP Interim Goal – 2022-2029</b>	1,025	33,595,329
- <i>Interim Step 1 – 2022-2024</i>	1,095	35,493,488
- <i>Interim Step 2 – 2025-2027</i>	1,005	32,932,763
- <i>Interim Step 3 – 2028-2029</i>	948	31,741,940
<b>CPP Final Goal – 2030 onwards</b>	918	31,257,429

On October 16, 2017, EPA published a proposed rule that would repeal the CPP, stating that the CPP exceeded EPA’s authorities under the CAA. EPA proposed to change its legal interpretation underlying the CPP to conclude that the CAA’s use of the term “best system of emission reduction” must involve technological or operational measures that apply to an individual point source as opposed to the approach taken in the CPP that would have involved a shifting of the balance of coal, gas, and renewable-generated power at the grid-wide level, which EPA stated constitutes energy policy as opposed to environmental policy. In August 2018, EPA proposed the Affordable Clean Energy (“ACE”) rule to replace the CPP. The ACE rule is focused on potential upgrades to coal plants and if implemented as proposed is unlikely to materially affect energy and capacity prices in the NYISO wholesale market and the Eastern Interconnection. On July 19, 2019, the EPA adopted a package of regulations repealing the CPP and adopting the final ACE rule. It is anticipated that EPA’s repeal of the CPP and the ACE rule would be subject to litigation. Given these developments, the timing and substance of federal regulation of CO<sub>2</sub> applicable in the State is not certain.

DEC’s GHG standards for new power plants, adopted in June 2012, are more stringent than the NSPS finalized by EPA on August 3, 2015. Specifically, new power plants must achieve a standard of 925 pounds of CO<sub>2</sub> equivalent per megawatt gross electrical output or 120 pounds CO<sub>2</sub> equivalent per million Btu of input. The standards are set at a level that permits the construction of natural gas plants with back-up fuel oil, but the standards are too low to permit construction of new coal-fired power plants in the State. On May 9, 2019, DEC adopted final regulations setting a CO<sub>2</sub> emission limit for existing power plants in the State of 1,800 pounds of CO<sub>2</sub> equivalent per megawatt gross electrical output or 180 pounds CO<sub>2</sub> equivalent per million Btu of input. All of the power plants owned by or under contract to the Authority are expected to be within this limit.

In addition, effective January 1, 2014, DEC revised its regulations implementing the Regional Greenhouse Gas Initiative (“RGGI”) program, a CO<sub>2</sub> cap-and-trade program that applies to EGUs within nine RGGI states in the Northeast and Mid-Atlantic region. The new regulations implement the decision of the RGGI states to lower the overall emissions cap to 91 million tons for 2014 and then further reduce the cap by 2.5 percent each year from 2015 to 2020. It is expected that power companies will comply with these caps by purchasing new allowances at auction at slightly higher prices and using allowances banked in previous compliance periods. The RGGI states have agreed to further reduce the regional cap by 30 percent from 2020 to 2030.

The State’s CES is also designed to address GHG emissions by requiring that 50 percent of the State’s electricity come from renewable energy sources such as solar and wind by 2030. Compliance with the current climate

change policies of EPA and DEC is not expected to have a material effect on LIPA, although new or modified policies seeking to fully address scientifically identified climate change risks may have material effects on LIPA.

See “RECENT DEVELOPMENTS –*Reforming the Energy Vision, Clean Energy Standard, the Zero-Emissions Credit Requirement and the Climate Leadership and Climate Protection Act*” herein for a description of certain State initiatives intended to transform the State’s energy industry and regulatory practices.

### **Cooling Water Intake Structure Regulation**

The federal Clean Water Act § 316(b) requires existing power plants with once-through circulating-water systems to implement modifications to reduce impingement and entrainment of fish and other aquatic organisms. This requirement applies to the Barrett, Northport, and Port Jefferson Power Stations. As of this time, Port Jefferson has been brought into compliance, and construction is ongoing at Northport under a plan and schedule approved by DEC to bring it into full compliance in 2021. Modifications at both stations involve new “fish-friendly” traveling screens, and variable-speed circulating-water pumps. A proposal and draft environmental impact statement for similar modifications at Barrett was submitted to DEC in 2014 and is awaiting action. Based on DEC’s approval of the Northport and Port Jefferson modifications, LIPA believes the proposed modifications for Barrett will also be approved.

### **Nuclear Plant Matters**

#### *Wholesale Electricity Prices*

Relatively low natural-gas prices in the Northeast have resulted in low wholesale electricity prices in upstate New York. With CENG’s majority share of NMP2 being a merchant endeavor, these prices were insufficient to provide a positive return on cash flow for CENG. To minimize the possibility that NMP2 and the other three nuclear units in Oswego and Wayne Counties, New York might cease operation before the expiration of their NRC Operating Licenses, the PSC established a system of ZECs under its CES. This system provides an additional payment to CENG for each MWH of energy produced at the Nine Mile Point Nuclear Site, up to a maximum of 9,206,000 MWH per year. The ZEC revenue attributable to NMP2 is split between Exelon and LIPA in proportion to their respective ownership shares. This additional revenue has thus far been sufficient to provide a positive return on cash flow for CENG, and to substantially mitigate the possibility of a shutdown of NMP2 before expiration of its operating license.

The ZEC program is currently set to run through March 31, 2029.

#### *Spent Fuel*

Under the Nuclear Waste Policy Act of 1982 the Department of Energy (“DOE”) was to develop, construct, and operate a system for the disposal of spent nuclear fuel and high-level radioactive waste. The system was to include interim storage capability and a permanent geological repository. A deadline of January 1, 1998 was set for DOE to begin moving spent fuel from nuclear power plants, and a fee of \$1.00/MWH was collected from nuclear-plant operators to cover the department’s costs for spent-fuel disposal. LIPA reimbursed CENG for its share of these payments. However, with the cancellation of DOE’s plans for a permanent geologic repository at Yucca Mountain in Nevada, DOE likely will not accept any spent nuclear fuel from commercial nuclear power plants in the near term. Collection of the disposal fee was suspended in May 2014.

Until a permanent repository is built, spent nuclear fuel from NMP2 over the capacity of its spent-fuel pool is being stored in dry casks at an on-site Independent Spent Fuel Storage Installation (“ISFSI”). Exelon is being reimbursed for its ongoing ISFSI costs by DOE from funds previously paid for NMP2’s fuel disposal. Exelon is forwarding to LIPA 18 percent of these reimbursements.

#### *Decommissioning*

Federal regulations require reactor operators to certify that sufficient funds will be available for decommissioning the radioactively contaminated portions of nuclear-plant sites. The option that LIPA adopted for

assuring availability of sufficient funds for its share of decommissioning costs is maintenance of external sinking funds that are segregated from its assets and outside its administrative control. These “trust funds” currently have a combined balance sufficient under NRC regulations to meet the present value of its decommissioning-cost obligation.

#### *Liability for Nuclear Accidents*

The Price-Anderson Nuclear Industries Indemnity Act requires a nuclear-plant licensee to carry private insurance for public damages that might be caused by a nuclear accident at its site. As of January 1, 2019, the required liability limit of such insurance is \$450 million. LIPA reimburses Exelon for 18 percent of the cost of this insurance for NMP2.

If damages from a nuclear accident at any site in the U.S. were to exceed \$450 million, all reactor licensees would be collectively liable for the excess, with a limit of \$121,255,000 per licensee, payable at no more than \$18,963,000 per year. LIPA’s share of this liability for NMP2 is \$21.8 million, payable at no more than \$3.4 million per year.

#### *Fukushima Daiichi*

Following the March 11, 2011 earthquake and tsunami that led to the catastrophic damage of the Fukushima Daiichi Plants in Japan, the NRC issued new requirements on March 12, 2012 that required upgrades to NMP2. NMP2 has been brought into by compliance with these requirements.

### **ENVIRONMENTAL MATTERS**

As discussed in “CERTAIN OTHER MATTERS —Guarantees and Indemnities” in this Part 2, National Grid and LIPA have signed Liabilities Undertaking and Indemnification Agreements which, taken together, provide, generally, that environmental liabilities are to be divided between National Grid and LIPA based on whether they relate to Transferred Business (defined below) or Retained Business (defined below). In addition, to clarify and supplement these agreements, National Grid and LIPA have also contracted to allocate between them certain liabilities, including environmental liabilities, arising from events occurring prior to the 1998 acquisition of LILCO and relating to the business and operations to be conducted by LIPA Parties after the 1998 acquisition (the “Retained Business”) and to the business and operations to be conducted by National Grid after the 1998 acquisition (the “Transferred Business”). For a complete description of specific actual and potential environmental liabilities of LIPA and National Grid, see “Legal Proceedings” in Note 16 of Notes to the Authority’s Basic Financial Statements for the years ended December 31, 2018 and 2017, which are included herein by specific cross-reference.

The Authority and LIPA are subject to several federal, State and local environmental laws and regulations governing the installation, operation and maintenance of electric transmission and distribution systems.

### **REGULATION**

The operations of the Authority and LIPA are subject to regulation by various State and federal agencies, discussions of which appear in other parts of this ADR. The principal agencies having a regulatory impact on the Authority and LIPA and the conduct of their activities are:

#### **New York State**

*DPS.* See “LIPA REFORM ACT” above for a description of the DPS’s role and relationship with LIPA and PSEG Long Island.

*Public Authorities Control Board (“PACB”).* The Authority is required by the Act to obtain certain approvals of the PACB. The PACB consists of five members appointed by the Governor of the State. One member is appointed upon the recommendation of the Majority Leader of the State Senate, one upon the recommendation of the Speaker of the State Assembly, one upon the recommendation of the Minority Leader of the State Senate and one upon the recommendation of the Minority Leader of the State Assembly. The two members of the PACB appointed by the

Governor upon the recommendations of the Minority Leaders of the Senate and the Assembly do not vote. The unanimous vote of the voting members of the PACB is required to authorize action by the PACB.

Pursuant to the Act, the Authority may not undertake any “project” without PACB approval. A “project” of the Authority is defined by the Act to mean an action undertaken by the Authority that: (i) causes the Authority to issue bonds, notes or other obligations, or shares in any subsidiary corporation; (ii) significantly modifies the use of an asset valued at more than one million dollars owned by the Authority or involves the sale, lease or other disposition of such an asset; or (iii) commits the Authority to a contract or agreement with a total consideration of greater than one million dollars and does not involve the day-to-day operations of the Authority. The Act provides that the PACB shall only approve a proposed project of the Authority upon the PACB’s determination that: (i) the project is financially feasible; (ii) the project does not materially adversely affect overall real property taxes in the Service Area; (iii) the project is anticipated to result generally in lower utility rates; and (iv) the project will not materially adversely affect overall real property taxes or utility rates in other areas of the State.

*New York State Comptroller.* Pursuant to the Act, the Authority must obtain the written approval of the Comptroller of any private sale of bonds or notes of the Authority and the terms of such sale. By letter dated July 22, 1999, the Comptroller set forth his determination pursuant to Section 1020-cc of the Act (which subjects all Authority contracts to “the provisions of the State Finance Law relating to contracts made by the State”) certain Authority contracts that exceed \$50,000 in amount must be approved by the Comptroller before such contracts become effective. The LIPA Reform Act amended Section 1020-cc of the Act to exempt, among other things, contracts signed between the Authority’s service provider and third parties from this requirement. In addition, the Comptroller’s office periodically conducts audits of the Authority to examine the Authority’s policies, procedures, controls and other financial and management practices.

*Utility Intervention Unit.* Under the LIPA Reform Act, the Utility Intervention Unit, within the Department of State, is empowered to participate in rate proceedings and hold regular forums in the Service Area.

*State Board on Electric Generation Siting and the Environment.* On August 4, 2011, Governor Cuomo signed legislation (the “Power NY Act of 2011”), which, among other things, establishes a new process for the siting of electric generating facilities and repowering projects over 25 megawatts. With respect to siting, the Power NY Act of 2011 is intended to provide greater certainty to the regulated community by providing a time-certain review process by a multi-agency board capable of granting all necessary permits, and to provide more meaningful input from those affected by the siting of a facility.

*Department of Environmental Conservation.* The DEC is the principal agency of the State government regulating air, water and land quality. Before any federal license or permit can be issued for any activity involving a discharge into navigable waters, the DEC must certify that the discharge will comply with the State water quality standards (or waive certification). Certain aspects of the DEC’s regulatory authority over pollutant discharge permits, air quality permits and hazardous waste regulation arise from delegation of such authority to the State by federal legislation.

## **Federal**

*Nuclear Regulatory Commission.* The NRC regulates the construction and operation of nuclear power plants. An operating license is required for operating any nuclear power plant. In addition, the NRC prescribes various operating standards and other rules.

*Federal Energy Regulatory Commission.* FERC regulates the rates, terms and conditions of: (i) the sale for resale of electric power by “public utilities”; and (ii) the provision of transmission service in interstate commerce by public utilities. Neither the Authority nor LIPA is a “public utility” under the FPA and therefore, FERC does not exercise direct jurisdiction over rates for service over LIPA’s facilities under either FPA Sections 205 or 206. Although the rates, terms and conditions under which the Authority provides transmission service are not currently subject to general FERC jurisdiction, FERC may order the Authority to provide wheeling transmission service to individual customers meeting the requirements of Sections 211 and 212 of the FPA on rates, terms and conditions comparable to those of the Authority for the Authority’s own use of its system. Further, FERC may apply the provisions of FPA Section 211A (under which FERC may order unregulated transmitting utilities to provide “open

access” transmission service) to LIPA, in which case LIPA would become subject to FERC jurisdiction with respect to the provision of wholesale transmission service at rates comparable to the rates it charges itself, on terms and conditions that are comparable and not unduly discriminatory or preferential.

FERC has never applied FPA Section 211A to LIPA. Since the enactment of this provision, FERC has taken a conservative approach to its implementation and has only asserted jurisdiction in very limited instances, none of which have involved an unregulated transmitting utility participating in an organized market, such as LIPA’s existing participation in the NYISO.

While the Authority and LIPA are non-jurisdictional entities with respect to the establishment of rates, terms and conditions of service for the sale of energy and provision of transmission service, FERC has jurisdiction over municipal utilities such as LIPA with respect to compliance with reliability standards and prohibitions against market manipulation. Under FPA Section 215, all users, owners and operators of the bulk power system, including LIPA, must comply with reliability standards issued by NERC, which FERC has approved as the Electric Reliability Organization responsible for overall adoption and enforcement of the reliability standards. In the Northeast, implementation of the NERC reliability standards is largely delegated to, and undertaken by, the Northeast Power Coordinating Council (“NPCC”). There are now over 100 federal reliability standards covering transmission and generation operations conducted by, or on behalf of LIPA. In addition to NERC standards and NPCC standards and criteria, the NYISO and State market participants must comply with NYSRC Reliability Rules for planning and operating the State Power System. NYSRC Reliability Rules are consistent with and more stringent and specific than associated ERO standards and NPCC standards and criteria. This is permitted by federal legislation in FPA Section 215. The NYSRC Reliability Rules include local rules that apply to New York City and Long Island that are more stringent than other NYSRC Rules. These Local Rules are more stringent because of the need to protect the reliable delivery of electricity for specific electric system characteristics and demographics relative to these zones. These conditions include unique circumstances and complexities related to the maintenance of reliable transmission service, and the dire consequences that would result from failure to provide uninterrupted service.

Separately, FPA Section 222 prohibits “any entity” (including otherwise non-jurisdictional entities such as LIPA) from engaging in the use of any manipulative or deceptive device or contrivance as part of its purchase or sale of electric energy or transmission service. FERC has implemented FPA Section 222 by issuing an anti-market manipulation rule set forth in 18 C.F.R. §1.c.2 and applied such rule to non-jurisdictional entities participating in wholesale energy markets. Violations of these requirements are subject to enforcement and potential sanctions by FERC, for which the Commission may apply its new Penalty Guidelines. The Penalty Guidelines have the potential to result in imposition of significant penalties where a violation causes a significant pecuniary gain for the violator or loss caused by the violation. As described above, prior court decisions have held that FERC’s penalty authority under FPA Section 316 and 316A does not extend to a municipality. However, this precedent has not yet been raised in a penalty assessment for violation of FPA Section 222 and LIPA expects that future cases before FERC and courts of appeal may clarify the authority of FERC to apply monetary civil penalties to municipalities, if any, for violations of FPA Section 222.

*Environmental Protection Agency.* The EPA is the principal agency of the federal government regulating air, water and land quality. The Authority and LIPA are subject to EPA rules requiring permits for discharge of identified pollutants in waters of the United States that may occur during utility operations. However, EPA does not regulate radiological emissions or effluents from nuclear facilities, rather the NRC reviews such environmental impacts as part of its permit and licensing proceedings.

*Department of Energy.* DOE may issue Presidential permits for international transmission interconnections and grant authorizations for the export of energy into Canada.

*United States Army Corps of Engineers.* The United States Army Corps of Engineers may approve construction undertaken in connection with a power plant or transmission line, which affects navigation, involves dredging or filling in waters of the United States, or involves crossing of navigable streams.

## **Other Jurisdictions**

The regulatory procedures of neighboring states such as Connecticut and New Jersey impact the ability of LIPA to obtain additional power supplies through constructing new cables which extend into such jurisdictions.

## **LITIGATION**

LIPA is involved in numerous actions arising from the ordinary conduct of its business both prior to and after the 1998 acquisition of LILCO that include claims related to: Superstorm Sandy, LIPA's challenges to tax assessments, and environmental claims brought by governments and individual plaintiffs that allege LIPA is responsible for all or a portion of the clean-up costs, personal injuries and/or damages resulting from its alleged use, release or deposit of hazardous substances which include asbestos. While LIPA cannot predict the costs of such pending claims, or additional similar claims which may arise, LIPA believes that such litigation, in the aggregate, will not have a material adverse impact on the business or the affairs of the Authority or LIPA. See "Legal Proceedings" in Note 16 of Notes to the Authority's Basic Financial Statements for the years ended December 31, 2018 and 2017.

## **CERTAIN OTHER MATTERS**

### **LIPA Assets and Liabilities**

At the time of the 1998 Acquisition of LILCO, in addition to the electric assets described under "Introduction to the Authority and LIPA" herein, LIPA also retained certain other of LILCO's former assets (these electric and other retained assets are referred to collectively as the "LIPA Assets") and liabilities (the "LIPA Liabilities" and, together with the LIPA Assets, the "LIPA Assets and Liabilities"). The LIPA Assets included, among other assets (i) certain regulatory assets of LILCO, including the Shoreham Regulatory Asset, (ii) the judgments, actions and claims of LILCO for refunds of property taxes, including the judgment resulting from the litigation contesting the assessment of certain Shoreham Nuclear Power Station property and (iii) other intangible assets of LILCO's former retail electric business, including the right to provide electric service in the Service Area. The LIPA Liabilities included, among other liabilities, certain environmental liabilities of LILCO not otherwise transferred to or indemnified by a National Grid Sub.

Upon consummating the 1998 Acquisition, LIPA recorded various purchase accounting adjustments to recognize the fact that LIPA is not subject to the regulatory jurisdiction of the PSC and is exempt from federal income tax. The primary result of these adjustments was the elimination of the regulatory assets and liabilities of LILCO, including the Shoreham Regulatory Asset, and eliminating LILCO's net deferred federal income tax liability. The unamortized balance of the excess of the acquisition costs over the original net book value of the transmission and distribution and nuclear assets and the fair value of the other net assets retained appears on the financial statements included by specific cross-reference herein as the "Acquisition Adjustment." This Acquisition Adjustment was originally being amortized over 35 years (commencing in 1998) and the remaining amortization period on the Acquisition Adjustment was shortened by approximately seven years based on the results of a depreciation study. In May 1998, when the Authority acquired LILCO, the original Acquisition Adjustment was approximately \$4.2 billion. At December 31, 2018, the balance of the Acquisition Adjustment, net of accumulated amortization was approximately \$878.0 million.

### **Guarantees and Indemnities**

National Grid USA (a subsidiary of National Grid) has absolutely and unconditionally guaranteed to the Authority (i) the full and prompt payment when due of all amounts required to be credited or paid by National Grid Sub under the PSA and (ii) the full and prompt performance of the covenants and agreements of the National Grid Sub under the PSA. Upon certain reductions in the credit ratings of National Grid USA, LIPA has the right to have National Grid USA obtain letters of credit securing these undertakings and agreements. On April 13, 2018, National Grid USA replaced Keyspan Corporation as the guarantor of National Grid Sub's obligations under the PSA, as provided in the amendment to the PSA that became effective on March 29, 2018.

PSEG Power LLC, a wholly-owned subsidiary of PSEG, has absolutely and unconditionally guaranteed to the Authority (i) the full and prompt payment when due of all amounts required to be credited or paid by PSEG Long Island under the TSA and OSA up to \$60,000,000 and (ii) the full and prompt performance of the covenants and agreements of PSEG Long Island under the TSA and OSA. Upon certain reductions in the credit ratings of PSEG Power LLC, LIPA has the right to have PSEG Long Island obtain a letter of credit in lieu of the corporate guaranty.

#### **ADDITIONAL INFORMATION**

Certain of the corporations mentioned in this ADR, including National Grid plc., PSEG, Exelon Corporation, the parent of Constellation Energy Nuclear Group, LLC, the operator of NMP2, file reports and other information with the Securities and Exchange Commission, which reports and information are publicly available. None of the above-mentioned additional information is included herein by specific cross-reference, and the Authority takes no responsibility for the accuracy or completeness thereof.

**APPENDIX A**

**AUDITED BASIC FINANCIAL STATEMENTS**

**LONG ISLAND POWER AUTHORITY**  
(A Component Unit of the State of New York)

Consolidated Financial Statements  
and Required Supplementary Information

December 31, 2018 and 2017

(With Independent Auditors' Report Thereon)

**LONG ISLAND POWER AUTHORITY**  
(A Component Unit of the State of New York)

Consolidated Financial Statements

December 31, 2018 and 2017

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KPMG LLP  
345 Park Avenue  
New York, NY 10154-0102

## Independent Auditors' Report

To the Board of Trustees  
Long Island Power Authority:

### Report on the Financial Statements

We have audited the accompanying consolidated financial statements of the business-type activities and fiduciary funds of the Long Island Power Authority (the Authority) and its blended component unit, collectively component units of the State of New York, as of and for the years ended December 31, 2018 and 2017, and the related notes to the consolidated financial statements, which collectively comprise the Authority's consolidated financial statements as listed in the table of contents.

### Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these consolidated financial statements in accordance with U.S. generally accepted accounting principles; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

### Auditors' Responsibility

Our responsibility is to express opinions on these consolidated financial statements based on our audits. We conducted our audits in accordance with auditing standards generally accepted in the United States of America and the standards applicable to the financial audits contained in *Government Auditing Standard* issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditors' judgment, including the assessment of the risks of material misstatement of the consolidated financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

### Opinion on the Consolidated Financial Statement

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the respective financial position of the business-type activities and fiduciary funds of the Long Island Power Authority and its blended component as of December 31, 2018 and 2017, and the respective changes in their net position and, where applicable, their cash flows for the year then ended in accordance with U.S. generally accepted accounting principles.



## **Other Matters**

### *Required Supplementary Information*

U.S. generally accepted accounting principles require that the information in the Management's Discussion and Analysis on pages 3 through 20 and Required Supplementary Information on pages 93 through 95, be presented to supplement the consolidated financial statements. Such information, although not a part of the consolidated financial statements, is required by the *Governmental Accounting Standards* Board who considers it to be an essential part of financial reporting for placing the consolidated financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the consolidated financial statements, and other knowledge we obtained during our audits of the consolidated financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

### **Other Reporting Required by *Government Auditing Standards***

In accordance with *Government Auditing Standards*, we have also issued our report dated March 20, 2019 on our consideration of the Authority's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements and other matters. The purpose of that report is solely to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on the internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the Authority's internal control over financial reporting and compliance.

**KPMG LLP**

New York, New York  
March 20, 2019

**LONG ISLAND POWER AUTHORITY**  
(A Component Unit of the State of New York)  
Management Discussion and Analysis of Financial Conditions and  
Results of Operations (Unaudited)  
December 31, 2018 and 2017  
(Amounts in thousands, unless otherwise stated)

**Introduction**

The Long Island Power Authority (the Authority) is a component unit of New York State (State). The Authority became the retail supplier of electric service in the Counties of Nassau and Suffolk (with certain limited exceptions) and a portion of Queens County known as the Rockaways (Service Area), on May 28, 1998 by acquiring the transmission and distribution (T&D) system of the Long Island Lighting Company (LILCO) as a wholly owned subsidiary of the Authority. As part of the acquisition, the Authority also acquired an undivided 18% interest in the Nine Mile Point Unit 2 (NMP2) generating facility, located in upstate New York, which is operated and managed by Exelon Corporation.

Since the acquisition, the Authority has conducted business through its wholly owned subsidiary, LILCO, under the names LIPA and Power Supply Long Island, referred to collectively as the Authority. The Authority provides electric delivery service in the Service Area, which includes approximately 1.1 million customers. The population of the Service Area is approximately 2.9 million.

The Authority has operating agreements to provide the majority of services necessary to provide electric service in the Service Area. The primary operating agreement is the Amended and Restated Operations Services Agreement (OSA) with PSEG Long Island LLC, (PSEG Long Island).

PSEG Long Island commenced operating the Authority's electric T&D system on January 1, 2014 under the PSEG Long Island brand name and provides day-to-day T&D system operating functions as well as certain administrative support functions to LIPA. PSEG Long Island acts as LIPA's agent in performing many of LIPA's obligations and in return receives (a) reimbursement for pass-through operating expenditures, (b) a fixed management fee and (c) an incentive fee contingent on meeting certain performance metrics.

The Authority also has a contract with PSEG Energy Resources and Trade LLC (PSEG ER&T) to provide services related to fuel and power supply management and certain commodity activities. Separately from its contract with PSEG ER&T, the Authority maintains power purchase agreements with various third-party power generators.

The Authority's Board of Trustees (Board) approves the Authority's annual consolidated budget, expenditures and the electric rates. The LIPA Reform Act, codified as Chapter 173, Laws of New York, (Reform Act) established a rate review process that required the Authority and PSEG Long Island to submit for review to the New York State Department of Public Service (DPS) a three-year rate proposal for electric rates for the 2016-2018 period. After the 2016-2018 period, the Authority and PSEG Long Island are only required to submit a proposed rate increase for DPS review and recommendation if it would increase the rates and charges by an amount that would increase the Authority's annual revenues by more than 2.5%. The DPS is required to review and make its recommendations to the Authority's Board within 240 days of such filing. The Authority's Board retains final rate-setting power.

The Reform Act created the Securitization Law that established the Utility Debt Securitization Authority (UDSA). The Securitization Law's purpose was to provide a legislative foundation for the UDSA's issuance of restructuring bonds to allow the Authority to retire a portion of its outstanding indebtedness, providing savings to the Authority's customers on a net present value basis. The restructuring bonds are repaid by an irrevocable,

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non-bypassable restructuring charge on all the Authority's customers. The UDSA has a governing body separate from that of the Authority and has no commercial operations.

The Securitization Law allowed the UDSA to issue restructuring bonds totaling approximately \$4.5 billion, the proceeds of which refunded Authority bonds and generated total net present value debt service savings of \$492 million for the Authority's customers.

**Overview of the Consolidated Financial Statements**

The Authority is engaged in business type activities and follows financial reporting for enterprise funds. The Authority's financial statements are prepared on an accrual basis in accordance with generally accepted accounting principles (GAAP) as prescribed by the Governmental Accounting Standards Board (GASB).

The management's discussion and analysis of the Authority's financial performance provides an overview of the Authority's financial information for the years ended December 31, 2018 and 2017. The discussion and analysis should be read in conjunction with the Consolidated Financial Statements and the accompanying notes, which follow this section. The notes are an integral part of the Authority's Consolidated Financial Statements and provide additional information on certain components of these statements.

**LONG ISLAND POWER AUTHORITY**  
(A Component Unit of the State of New York)

Management Discussion and Analysis of Financial Conditions and

Results of Operations (Unaudited)

December 31, 2018 and 2017

(Amounts in thousands, unless otherwise stated)

The Authority's Consolidated Statements of Net Position as of December 31, 2018, 2017 and 2016 are summarized below:

	<u>2018</u>	<u>2017</u>	<u>2016</u>
Assets and deferred outflows of resources:			
Capital assets	\$ 8,383,338	8,088,014	7,768,551
Current assets	2,101,253	1,922,648	1,888,172
Regulatory assets	1,090,570	1,329,148	1,299,251
Other noncurrent assets	1,235,843	1,542,921	1,858,009
Deferred outflows of resources	<u>247,313</u>	<u>275,026</u>	<u>286,779</u>
Total assets and deferred outflows of resources	<u>13,058,317</u>	<u>13,157,757</u>	<u>13,100,762</u>
Liabilities and deferred inflows of resources:			
Long-term debt	8,233,016	7,978,731	7,756,751
Current liabilities	1,080,086	1,266,128	1,345,039
Regulatory liabilities	61,556	14,910	12,100
Other noncurrent liabilities	2,668,763	2,884,844	3,013,915
Deferred inflows of resources	<u>520,046</u>	<u>540,956</u>	<u>517,891</u>
Total liabilities and deferred inflows of resources	12,563,467	12,685,569	12,645,696
Total net position	<u>494,850</u>	<u>472,188</u>	<u>455,066</u>
Total liabilities, deferred inflows of resources and net position	<u>\$ 13,058,317</u>	<u>13,157,757</u>	<u>13,100,762</u>

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**Assets and Deferred Outflows of Resources**

**2018 Compared to 2017**

Assets and deferred outflows of resources decreased \$99 million compared to 2017 due to decreases of \$238 million in regulatory assets, \$307 million in noncurrent assets, and \$28 million in deferred outflows of resources. These decreases were partially offset by increases of \$295 million in capital assets and \$179 million in current assets.

Capital assets increased \$295 million compared to 2017 primarily due to higher investment in reliability capital projects, as well as certain storm hardening projects. These capital additions were partially offset by asset retirements and annual depreciation expense.

Current assets increased \$179 million compared to 2017 primarily due to increased investment account balances and increased accounts receivable resulting from higher revenues from a warmer than normal summer.

Regulatory assets decreased \$238 million primarily due to a decrease of \$139 million in the OSA–employee retirement benefits regulatory asset resulting from an updated actuarial study, the resolution of outstanding issues with the Authority’s prior service provider allowing for a reduction to an existing regulatory asset of \$42 million and scheduled annual recovery or amortizations of regulatory assets totaling \$77 million. These decreases were partially offset by an increase in the Delivery Service Adjustment (DSA) of \$20 million. For a full discussion of the regulatory assets and liabilities, see note 5 to the Authority’s Consolidated Financial Statements.

Other noncurrent assets decreased \$307 million primarily due to the \$172 million decrease in restricted cash and cash equivalents due to expenditures for storm hardening capital projects and \$111 million of scheduled amortization of the Acquisition Adjustment.

Deferred outflow of resources decreased \$28 million primarily due to the improvement in the mark-to-market valuation of the Authority’s effective commodity derivatives.

**2017 Compared to 2016**

Assets and deferred outflows of resources increased \$57 million compared to 2016 due to increases of \$320 million in capital assets, \$34 million in current assets, and \$30 million in regulatory assets, partially offset by decreases of \$315 million in noncurrent assets, and \$12 million in deferred outflows of resources.

Capital assets increased \$320 million compared to 2016 primarily due to higher investment in reliability capital projects as well as certain storm hardening projects. These capital additions were partially offset by asset retirements and annual depreciation expense.

Current assets increased \$34 million compared to 2016 primarily due to increased mark-to-market valuations on the Authority’s investment accounts.

Regulatory assets increased \$30 million primarily due to the increase of \$48 million in the DSA and the Power Supply Charge (PSC), partially offset by the scheduled annual recovery or amortizations of regulatory assets totaling \$18 million. For a full discussion of the regulatory assets and liabilities, see note 5 to the Authority’s Consolidated Financial Statements.

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Other noncurrent assets decreased \$315 million primarily due to the \$195 million decrease in restricted cash and cash equivalents due to expenditures for storm hardening capital projects funded by the Federal Emergency Management Agency (FEMA) and \$111 million of scheduled amortization of the Acquisition Adjustment.

Deferred outflow of resources decreased \$12 million primarily due to the change in the mark-to-market valuation of the Authority's effective commodity derivatives.

### **Liabilities and Deferred Inflows of Resources**

#### **2018 Compared to 2017**

Liabilities and deferred inflows of resources decreased \$122 million due to decreases of \$186 million in current liabilities, \$216 million in noncurrent liabilities, and \$21 million in deferred inflows of resources. These decreases were partially offset by increases of \$254 million in long-term debt and \$47 million in regulatory liabilities.

Long-term debt increased \$254 million. The Authority issued \$430 million Electric System General Revenue Bonds Series 2018, which together with the \$52 million of premium received on the bonds, funded capital projects. These increases were partially offset by the \$192 million of current debt maturities classified as current liabilities.

Current liabilities decreased \$186 million primarily due to the \$126 million decrease in outstanding short-term debt with the remaining decrease due to lower accounts payable and various lower accruals.

Regulatory liabilities increased \$47 million due to the Revenue Decoupling Mechanism whereby any revenue variances caused by warmer than normal weather is returned to the customers.

Other noncurrent liabilities decreased \$216 million primarily due to the amortization of the capital lease obligations of approximately \$141 million, a \$22 million improvement in the deferred mark-to-market valuation on the Authority's interest derivatives, and a \$62 million decrease in the PSEG Long Island's workforce retirement benefit obligations resulting from an updated actuarial valuation. These decreases were partially offset by the increase in miscellaneous reserves.

Deferred inflows of resources decreased \$21 million primarily due to increased mark-to-market valuations on certain investment accounts.

#### **2017 Compared to 2016**

Liabilities and deferred inflows of resources increased \$40 million due to an increase of \$222 million in long-term debt, an increase of \$3 million in regulatory liabilities, an increase of \$23 million in deferred inflows of resources, partially offset by decreases of \$78 million in current liabilities, and \$130 million in noncurrent liabilities.

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Long-term debt increased \$222 million. This increase reflects \$369 million of UDSA Restructuring Bonds, Series 2017, which together with \$71 million of premium received on the bonds, allowed the Authority to retire approximately \$400 million of its existing debt. The refunding generated total net present value debt service savings of \$45 million. The Authority also issued \$350 million Electric System General Revenue Bonds Series 2017, which together with the \$56 million of premium received on the bonds, funded capital projects. These increases were partially offset by the \$193 million of current debt maturities classified as current liabilities.

Current liabilities decreased \$78 million primarily due to the \$45 million decrease in outstanding short-term debt, lower current portion due for capital leases of \$19 million, with the remaining decrease due to various lower accruals.

Other noncurrent liabilities decreased \$130 million primarily due to the amortization of the capital lease obligations of approximately \$177 million, a \$21 million decrease in the deferred mark-to-market valuation on the Authority's interest derivatives, and a \$25 million decrease in the Authority's other post-employment retirement benefit obligations resulting from the funding of a Section 115 trust. These decreases were partially offset by a \$90 million increase in the PSEG Long Island's workforce retirement benefit obligations resulting from an updated actuarial valuation.

Deferred inflows of resources increased \$23 million primarily due to increased mark-to-market valuations on certain investment accounts.

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**Results of Operations**

The Authority's Consolidated Statements of Revenues, Expenses and Changes in Net position for the years ended December 31, 2018, 2017 and 2016 are summarized as follows:

	<u>2018</u>	<u>2017</u>	<u>2016</u>
Electric revenue	\$ 3,576,274	3,481,613	3,399,101
Operating expenses	(3,301,305)	(3,214,117)	(3,163,353)
Interest expense	<u>(352,383)</u>	<u>(336,071)</u>	<u>(349,809)</u>
Total expenses	<u>(3,653,688)</u>	<u>(3,550,188)</u>	<u>(3,513,162)</u>
Revenue less operating and interest expenses	<u>(77,414)</u>	<u>(68,575)</u>	<u>(114,061)</u>
Grant income	43,238	42,058	43,929
Other income	<u>56,838</u>	<u>43,639</u>	<u>43,699</u>
Total other income	<u>100,076</u>	<u>85,697</u>	<u>87,628</u>
Change in net position	<u>22,662</u>	<u>17,122</u>	<u>(26,433)</u>
Net position, beginning of year	<u>472,188</u>	<u>455,066</u>	<u>481,499</u>
Net position, end of year	<u>\$ 494,850</u>	<u>472,188</u>	<u>455,066</u>

**Operating Revenues**

**2018 Compared to 2017**

Electric operating revenues for 2018 totaled \$3.58 billion, an increase of \$95 million compared to 2017 due to an increase in base delivery rates totaling \$48 million and higher power supply costs totaling \$43 million. Other factors, such as the DSA deferral and other miscellaneous revenues, caused the remaining increase in revenues.

**2017 Compared to 2016**

Electric operating revenues for 2017 totaled \$3.48 billion, an increase of \$83 million compared to 2016 due to an increase in base delivery rates totaling \$84 million, and higher power supply costs totaling \$15 million partially offset by lower DSA deferrals totaling \$18 million.

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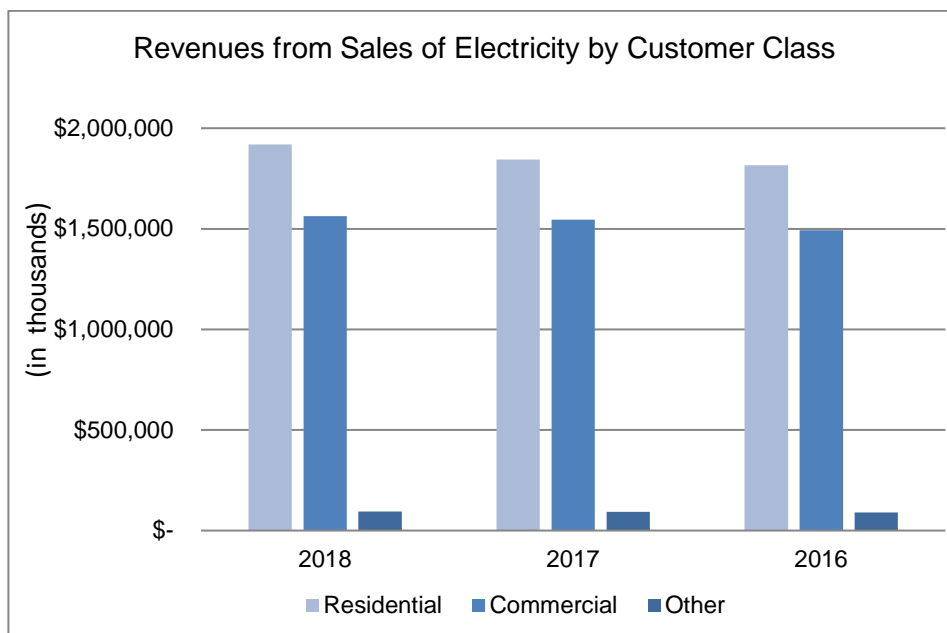
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The following table and chart represent revenue for the years ended December 31, 2018, 2017 and 2016 by customer class (residential, commercial and other).

<u>Revenues from sales of electricity</u>	<u>2018</u>	<u>2017</u>	<u>2016</u>
Residential	\$ 1,919,126	1,843,735	1,815,921
Commercial	1,563,010	1,544,607	1,492,815
Other	94,138	93,271	90,365
Total	<u>\$ 3,576,274</u>	<u>3,481,613</u>	<u>3,399,101</u>



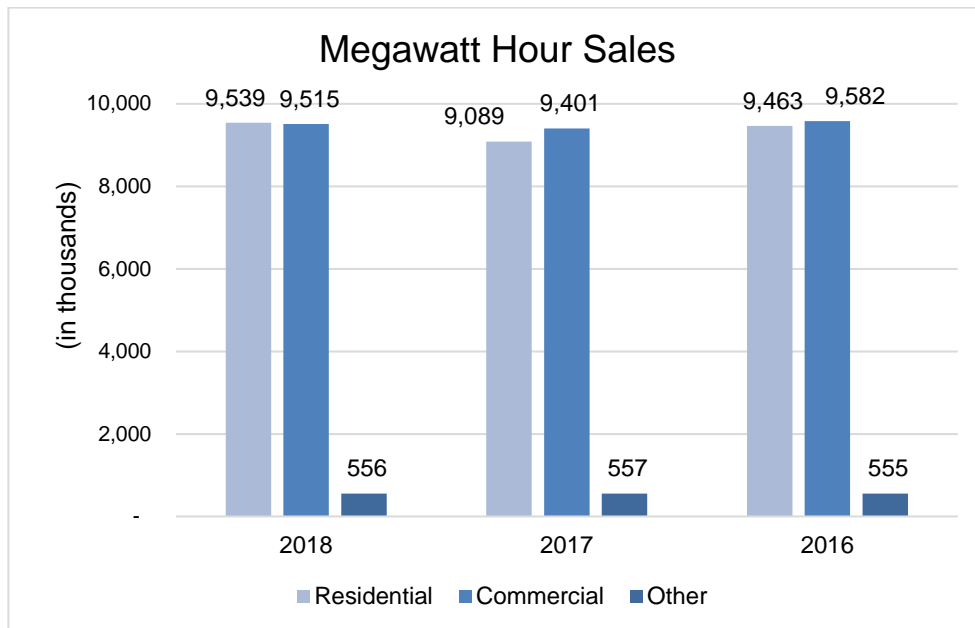
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The following chart shows megawatt hour (MWh) sales for the years ended December 31, 2018, 2017 and 2016 by customer class (residential, commercial and other). The largest customer in the Service Area (the Long Island Rail Road) accounted for less than 2% of total sales and less than 2% of revenue, which is included in "Other" sales. In addition, the ten largest customers in the Service Area accounted for approximately 7% of total sales and less than 7% of revenue.



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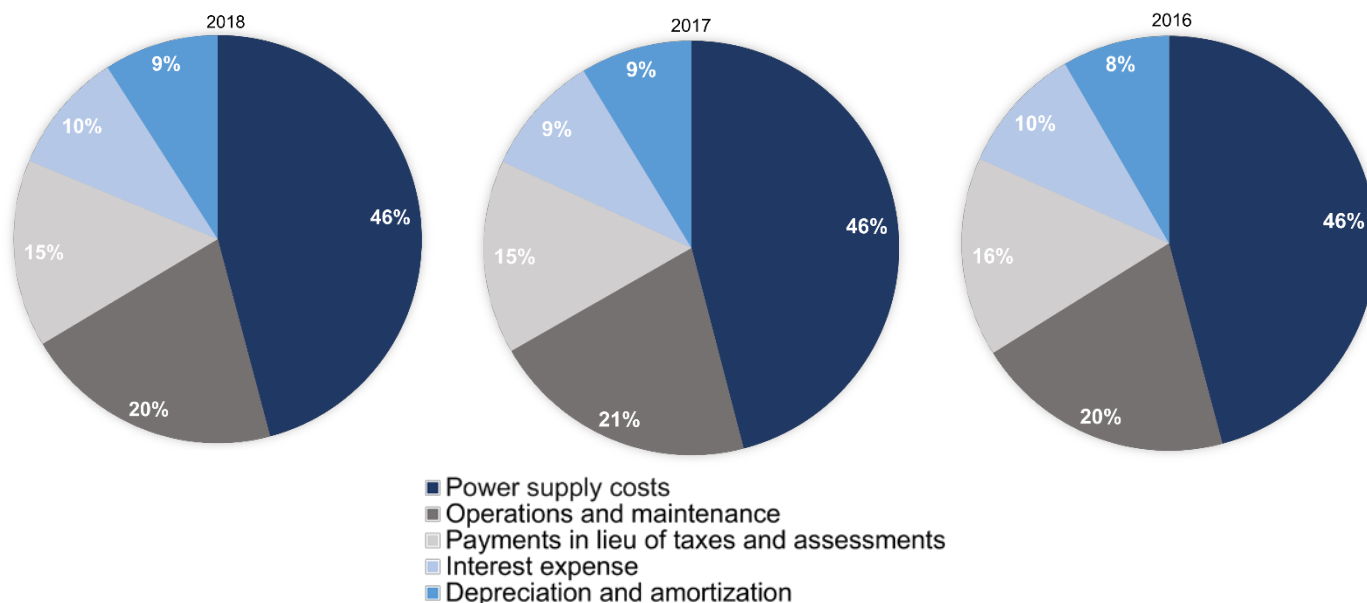
December 31, 2018 and 2017

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**Operating and Interest Expenses**

For the years ended December 31, 2018, 2017 and 2016, the Authority's expenses were comprised of (i) power supply costs; (ii) operations and maintenance expenses; (iii) payments in lieu of taxes, other taxes and assessments (including property taxes on generating assets under contract); (iv) interest expense; and (v) depreciation and amortization, as shown below:

<u>Operating and Interest Expenses</u>	<u>2018</u>	<u>2017</u>	<u>2016</u>
Power supply costs	\$ 1,675,640	1,631,475	1,610,604
Operations and maintenance	751,154	737,166	712,633
Payments in lieu of taxes and assessments	542,651	536,721	546,065
Interest expense	352,383	336,071	349,809
Depreciation and amortization	331,860	308,755	294,051
Total	<u>\$ 3,653,688</u>	<u>3,550,188</u>	<u>3,513,162</u>



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**2018 Compared to 2017**

For the year ended December 31, 2018, operating and interest expenses totaled \$3.65 billion, an increase of \$103 million compared to 2017. The increase is primarily due to higher: (i) power supply costs of \$44 million; (ii) operating and maintenance costs of \$14 million primarily attributable to higher storm restoration costs; (iii) payments in lieu of taxes and assessments of \$6 million; (iv) interest costs of \$16 million; and (v) depreciation expense of \$23 million.

**2017 Compared to 2016**

For the year ended December 31, 2017, operating and interest expenses totaled \$3.55 billion, an increase of \$37 million compared to 2016. The increase is primarily due to higher: (i) power supply costs of \$21 million; (ii) operating and maintenance costs of \$24 million; and (iii) depreciation expense of \$15 million. Partially offsetting these increased costs were lower (i) payments in lieu of taxes and assessments of \$9 million and (ii) interest costs of \$14 million.

**Capital Asset and Financing Activities**

The Authority's 2019 budget projects expenditures of approximately \$869 million for various capital improvements. The Authority anticipates a portion of these expenditures will be funded using long-term tax-exempt bonds. The Authority's Board established a financial policy that seeks to reduce the portion of the Authority's capital plan funded by debt to 64% or less and over five years raise the Authority's credit ratings to A2 by Moody's Investors Service (Moody's), A by Standard and Poor's Global Ratings (S&P), and A by Fitch Ratings (Fitch). The Authority's debt is currently rated A3 (Positive) by Moody's, A- (Positive) by S&P, and A- (Stable) by Fitch. The Authority cannot predict whether it will meet its credit rating objectives.

During 2018, the Authority had approximately \$640 million in capital improvements which were partially funded with the issuance of \$430 million of Electric System General Revenue Bonds, Series 2018. During 2017, the Authority had approximately \$697 million in capital improvements which were partially funded with the issuance of \$350 million Electric System General Revenue Bonds, Series 2017.

Also, during 2017, the UDSA issued \$369.5 million of 2017 Restructuring Bonds, exhausting the \$4.5 billion statutory authority of bonds allowed under the Securitization Law. The 2017 UDSA refinancing generated \$45.4

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million in net present value debt service savings, resulting in aggregate net present value debt service savings of \$492 million for all the UDSA refinancings.

The Authority and UDSA paid scheduled debt maturities totaling \$193 million in 2018 and \$190 million in 2017.

The table below summarizes the financing activity for the Authority and the UDSA for the years ended December 31, 2018 and 2017:

	<u>Bonds to fund capital projects</u>	<u>Refinancing of fixed-rate bonds for savings</u>	<u>Remarketing of variable-rate bonds</u>
<b>2018:</b>			
2018 General Revenue Bonds	\$ 430,000	—	—
2014C General Revenue Bonds	—	—	150,000
2015C General Revenue Bonds	—	—	149,000
<b>2017:</b>			
2017 General Revenue Bonds	\$ 350,000	—	—
UDSA Restructuring Bonds	—	369,465	—

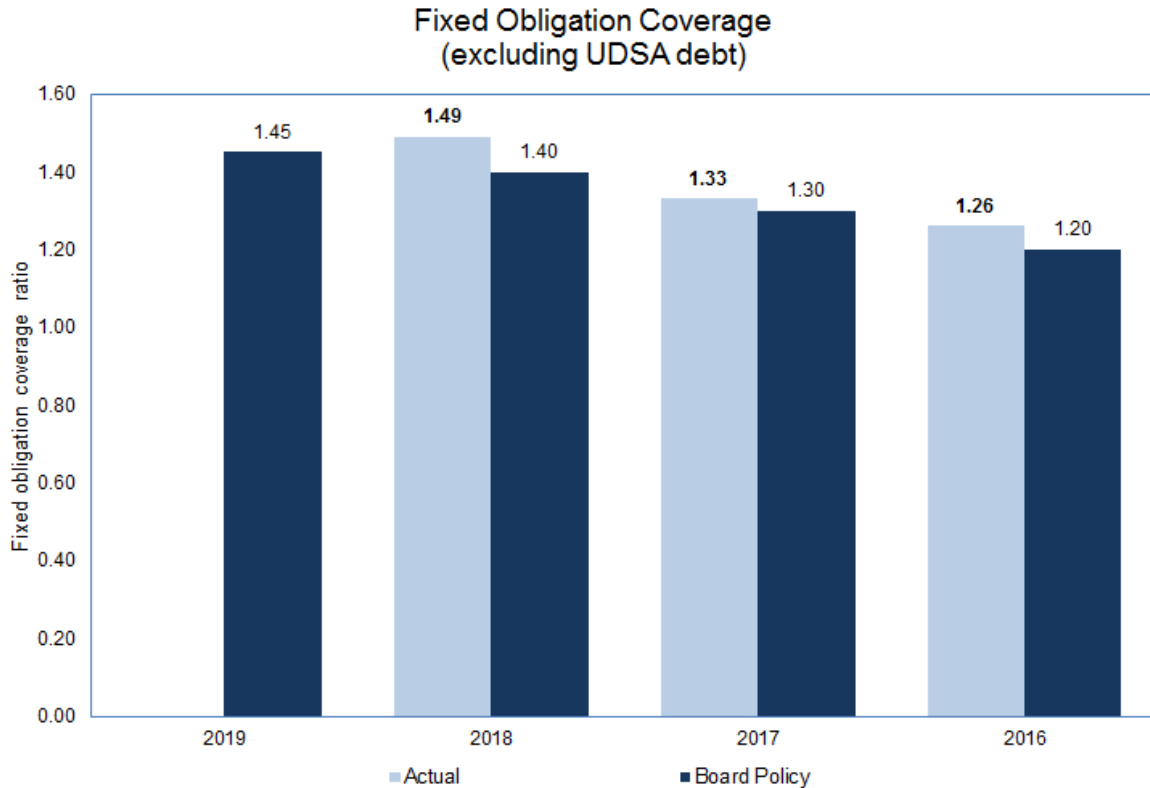
For a full discussion on the Authority's debt activities, see note 12 to the Consolidated Financial Statements.

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**Fixed Obligation Coverage Ratios**

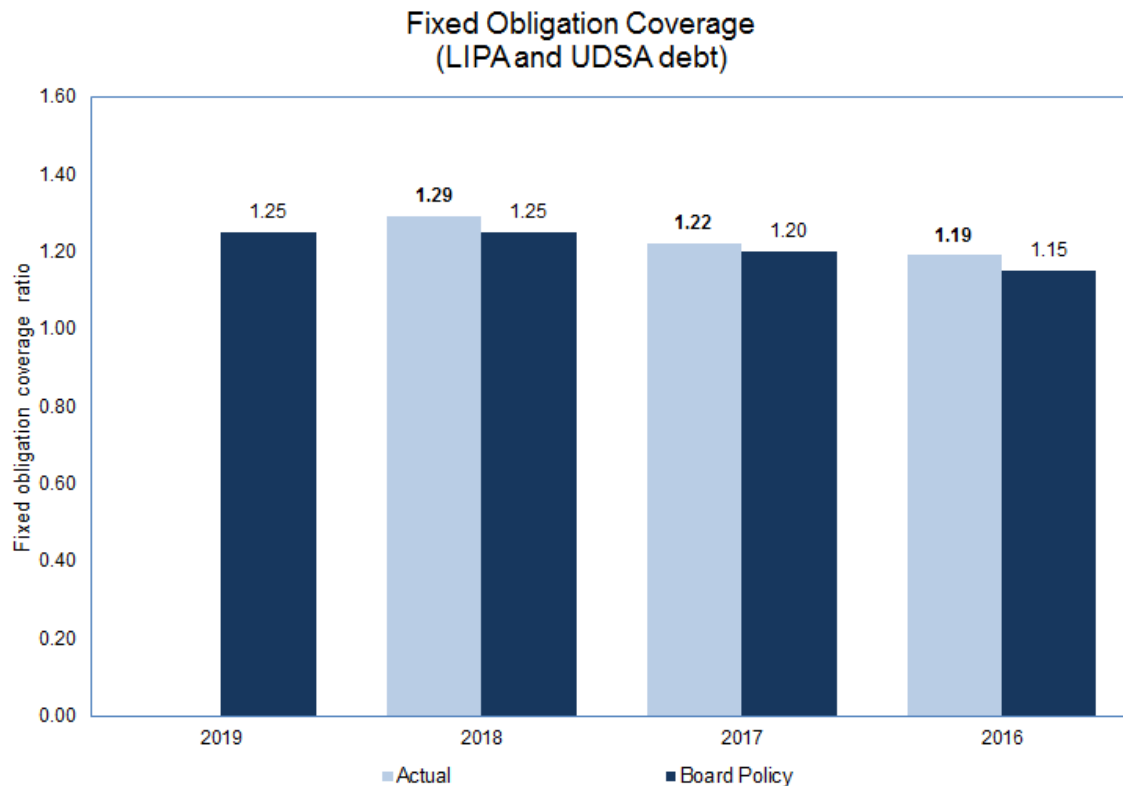
The Authority utilizes the “public power model” of budgeting and rate setting, using fixed obligation coverage ratios to determine revenue requirements. The Authority’s methodology for calculating its fixed obligation coverage ratios excludes certain specified non-cash items from expenses. The Authority budgeted to achieve fixed obligation coverage targets (including capital leases) on Authority issued debt of a minimum of 1.45x, 1.40x, 1.30x, and 1.20x in 2019, 2018, 2017 and 2016, respectively.

The Authority exceeded its targets for the years ended December 31, 2018, 2017 and 2016 with fixed obligation coverage ratios of 1.49x, 1.33x and 1.26x, respectively.



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With the UDSA restructuring bonds included, the Authority's coverage ratio targets were a minimum of 1.25x, 1.25x, 1.20x, and 1.15x in 2019, 2018, 2017, and 2016, respectively. The fixed obligation coverage ratios, inclusive of the UDSA restructuring bonds, for the years ended December 31, 2018, 2017 and 2016 were 1.29x, 1.22x, and 1.19x, respectively.



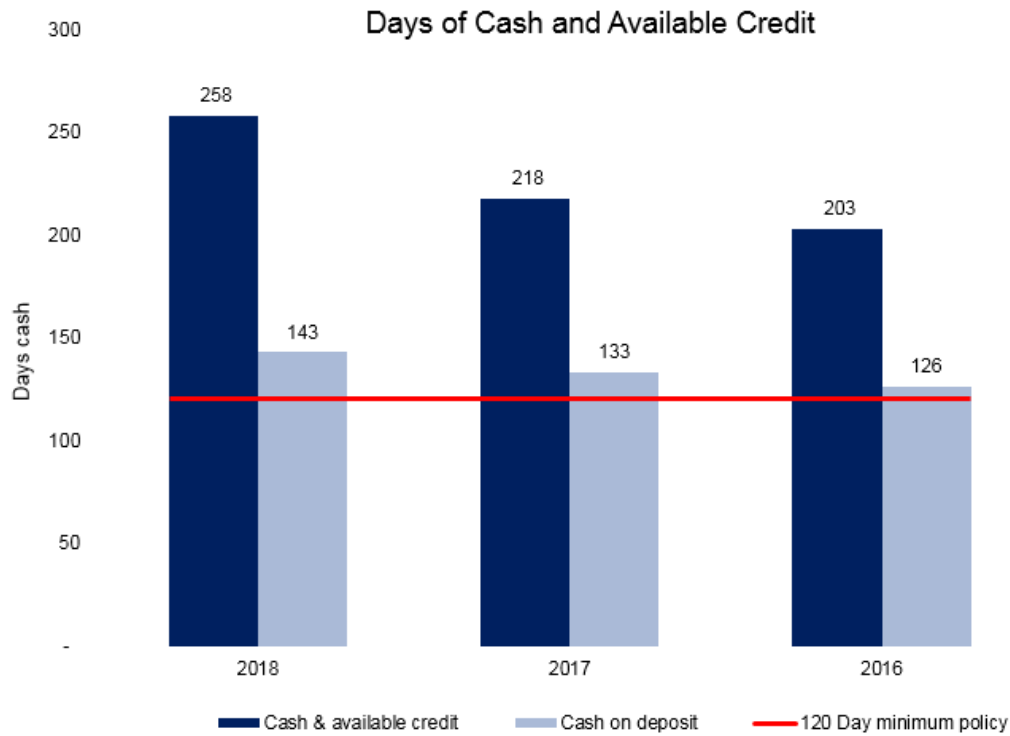
The Authority projects fixed obligation coverage ratios of 1.45x (Authority only) and 1.25x (Authority and UDSA). The Authority cannot predict whether its targets for 2019 or beyond will be realized.

For a full discussion of the fixed obligation coverage ratio calculation, see note 12 to the Consolidated Financial Statements.

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**Liquidity and Capital Resources**

The Authority's Board financial policy is to maintain cash on hand and available credit equivalent of at least 120 days of operating expenses. As of December 31, 2018, 2017 and 2016, the Authority's available sources of liquidity for operating purposes and capital program funding achieved the policy target with 258 days, 218 days and 203 days of cash and available credit, respectively. This represents cash, cash equivalents, investments and available credit totaling approximately \$2.10 billion as of December 31, 2018.



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The table below summarizes the Authority's operating liquidity and available credit capacity:

	<b>2018</b>	<b>2017</b>	<b>2016</b>
<b>Operating liquidity</b>			
Unrestricted cash and cash equivalents	\$ 679,940	633,531	652,370
OPEB Account cash, cash equivalents & investments	271,879	194,699	128,998
PSEG Long Island Working Capital requirements	198,611	211,972	207,045
<b>Total operating liquidity</b>	<b>1,150,430</b>	<b>1,040,202</b>	<b>988,413</b>
<b>Available credit</b>			
General Revenue Notes - Revolving Credit Facility	345,000	337,180	337,500
General Revenue Notes - Commercial Paper	570,500	277,500	219,375
Subordinated General Revenue Notes - Commercial Paper	-	50,000	50,000
<b>Total available credit</b>	<b>915,500</b>	<b>664,680</b>	<b>606,875</b>
<b>Total cash, cash equivalents, investments &amp; available credit</b>	<b>\$ 2,065,930</b>	<b>1,704,882</b>	<b>1,595,288</b>
<b>Restricted cash, cash equivalents and investments</b>			
FEMA Grant Proceeds	103,820	275,783	470,972
UDSA	124,597	109,167	88,572
<b>Total restricted cash, cash equivalents and investments</b>	<b>\$ 228,417</b>	<b>384,950</b>	<b>559,544</b>

*Funds included in available cash, cash equivalents and investments*

The Authority's available liquidity balances include accounts dedicated to pre-funding PSEG Long Island's working capital needs totaling approximately \$199 million, \$212 million and \$207 million as of December 31, 2018, 2017 and 2016, respectively. This represents approximately 25 days cash as of December 31, 2018. These accounts are owned by the Authority and are available only for the Authority's operating and capital costs. The funds are restricted due to the contractual obligation to pre-fund the accounts from which PSEG Long Island, who acts as agent for the Authority, pays expenses related to operating the Authority's electric system; however, the Authority considers these funds to be part of its working capital as these funds are available to meet LIPA's operating and capital needs.

The Authority's available liquidity balances also includes an unrestricted OPEB Account established to pre-fund certain future post-employment retirement obligations of the PSEG Long Island employees. The balance in the unrestricted OPEB Account is intended to fund the PSEG Long Island employee retiree contractual obligation. However, in the event that revenues are insufficient to pay reasonable and necessary operating expenses, or to

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make payments on bonds or parity obligations, these funds are available; as such they are considered unrestricted cash, cash equivalents and investments. As of December 31, 2018, 2017 and 2016, the unrestricted OPEB Account had approximately \$272 million, \$195 million and \$129 million on deposit, respectively. This represents approximately 34 days cash as of December 31, 2018.

*Available credit*

The Authority maintains a short-term borrowing program to provide resources to meet interim working capital needs, fund its capital program between long-term debt offerings, and meet any cash flow requirements from severe weather events. Among other factors, the Authority's operating and capital needs vary during the year given the summer peaking and seasonal nature of its sales. The maximum outstanding balances of total combined short-term borrowings may not exceed \$1.0 billion. These borrowing programs are part of the Authority's available credit.

Included in the Authority's short-term borrowing program are: (i) \$800 million Senior Lien Series 2015 General Revenue Notes, of which \$230 million was outstanding as of December 31, 2018 and (ii) a Revolving Credit Facility Agreement, which has a maximum capacity of \$350 million of which approximately \$5 million and \$13 million was outstanding as of December 31, 2018 and 2017, respectively. In 2019, the Authority plans to reduce the maximum capacity under a new Revolving Credit Facility Agreement from the \$350 million to \$200 million.

During 2018, the Authority terminated its \$300 million Series 2014 Subordinate Revenue Commercial Paper Notes, of which \$250 million was outstanding as of December 31, 2017. These notes were replaced by the Senior Lien Series 2015 General Revenue Notes.

The combined outstanding balance of the Authority's short-term borrowings totaled \$235 million and \$360 million as of December 31, 2018 and 2017, respectively. The short-term borrowing programs are supported by bank agreements with various expiration dates from 2019 through 2022. Management expects to renew or replace these bank agreements as needed prior to their expiration. The Authority believes it will have sufficient liquidity throughout 2019 to meet its planned operating, maintenance and capital programs.

*Restricted cash, cash equivalents and investments*

The Authority's restricted cash, cash equivalents and investments as of December 31, 2018, 2017 and 2016 was \$228 million, \$385 million and \$560 million, respectively, of which approximately \$104 million, \$276 million and \$471 million, respectively, was advance funding provided by FEMA for storm restoration and storm hardening capital projects. The storm hardening projects are intended to strengthen the Long Island electrical grid against the effects of severe weather.

The remaining balance of restricted cash and cash equivalents is related to UDSA debt service payments and required debt service and operating reserves of \$124 million, \$109 million and \$89 million as of December 31, 2018, 2017 and 2016, respectively. Restricted funds are not included in the days cash calculation.

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**Risk Management**

The Authority has a dedicated Enterprise Risk Management group to identify operating and other risks within each business unit and assist such business units in developing an ongoing risk identification, monitoring and mitigation program.

The Authority also has an Enterprise Risk Management Committee (ERMC) to identify and manage commodity and interest rate risk it is exposed to during the conduct of its operations. As part of risk management, the Authority established a power supply risk management program to mitigate a portion of the exposure to fluctuations in commodity prices on behalf of its customers. The Authority also hedges its interest rate exposure through certain interest rate derivatives that are approved by the ERMC based on the Board policy established for interest rate exchange agreements.

**Bond Ratings**

The Authority and UDSA bonds are rated by Moody's, S&P, and Fitch as shown below:

	<b>Investment ratings</b>		
	<b>Moody's</b>	<b>S&amp;P</b>	<b>Fitch</b>
Senior Lien Bonds	A3 (Positive)	A- (Positive)	A- (Stable)
UDSA Restructuring Bonds	Aaa (sf)	AAA (sf)	AAA (sf)

During 2018, Moody's affirmed the Authority's A3 rating with a Positive Outlook, and S&P affirmed an A- rating with a Positive Outlook. Fitch maintains a Stable Outlook on the Authority's bonds.

Certain bonds and notes of the Authority are supported by either a bank letter of credit or are insured against default.

**Contacting the Long Island Power Authority**

This financial report is designed to provide the Authority's bondholders, customers, and other interested parties with a general overview of the Authority's finances and to demonstrate its accountability for the funds it receives. If you have any questions about this report or need additional information, contact the Authority at 333 Earle Ovington Blvd., Suite 403, Uniondale, New York 11553, or visit the Authority's website at [www.lipower.org](http://www.lipower.org).

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Consolidated Statements of Net Position

December 31, 2018 and 2017

(Amounts in thousands)

<b>Assets and Deferred Outflows of Resources</b>	<b>2018</b>	<b>2017</b>
<b>Current assets:</b>		
Cash and cash equivalents	\$ 327,800	425,472
Restricted cash - working capital requirements	198,611	211,972
Restricted cash	124,597	109,167
Investments	624,019	402,758
Counterparty collateral – posted by the Authority	7,320	19,507
Accounts receivable (less allowance for doubtful accounts of \$28,185 and \$31,549 at December 31, 2018 and December 31, 2017, respectively)	531,607	463,447
Other receivables	74,625	91,303
Fuel inventory	99,117	94,380
Material and supplies inventory	50,574	52,026
Commodity derivatives	17,282	13,162
Regulatory assets to be recovered within one year	150,517	191,634
Prepayments and other current assets	45,701	39,454
	<u>2,251,770</u>	<u>2,114,282</u>
<b>Noncurrent assets:</b>		
Restricted cash and cash equivalents	11,607	2,970
Restricted investments	92,213	272,813
Utility plant and property and equipment, net	8,383,338	8,088,014
Nuclear decommissioning trust	125,219	132,202
Other long-term receivables	31,089	28,424
Unrealized charges	94,464	114,574
Financial derivatives	3,240	2,552
Regulatory assets for future recovery	940,053	1,137,514
Acquisition Adjustment, net	878,011	989,386
	<u>10,559,234</u>	<u>10,768,449</u>
<b>Deferred outflows of resources:</b>		
Deferred defeasance costs on debt refunding	241,552	273,836
OPEB expense	1,679	—
Pension expense	1,594	1,190
Accumulated decrease in fair value of OPEB Account	2,488	—
	<u>247,313</u>	<u>275,026</u>
<b>Total deferred outflows of resources</b>	<u>247,313</u>	<u>275,026</u>
<b>Total assets and deferred outflows of resources</b>	<u>\$ 13,058,317</u>	<u>13,157,757</u>

See accompanying notes to consolidated financial statements.

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Consolidated Statements of Net Position

December 31, 2018 and 2017

(Amounts in thousands)

<b>Liabilities, Deferred Inflows of Resources and Net Position</b>	<b>2018</b>	<b>2017</b>
<b>Current liabilities:</b>		
Short-term debt	\$ 234,500	360,320
Current maturities of long-term debt	61,430	69,880
Current maturities of UDSA debt	130,761	122,803
Current portion of capital lease obligation	168,430	177,361
Accounts payable and accrued expenses	376,177	439,717
Regulatory liabilities payable in one year	61,556	14,910
Commodity derivative instruments	—	6,556
Accrued payments in lieu of taxes	10,550	9,570
Accrued interest	48,638	41,254
Unrealized credits	10,250	—
Customer deposits	39,350	38,667
	<b>1,141,642</b>	<b>1,281,038</b>
<b>Noncurrent liabilities:</b>		
Long-term debt	3,775,406	3,344,223
Long-term UDSA debt	4,457,610	4,634,508
Capital lease obligations	1,702,801	1,843,515
Borrowings	72,256	77,307
OSA - employee retirement benefits	609,176	670,861
Financial derivative instruments	106,058	128,139
Asset retirement obligation	67,483	67,787
Long-term liabilities and unrealized credits	43,142	39,559
Claims and damages	67,847	57,676
	<b>10,901,779</b>	<b>10,863,575</b>
<b>Deferred inflows of resources:</b>		
Regulatory credits - grants	498,322	501,404
Accumulated increase in fair value of financial derivatives	3,240	2,552
Accumulated increase in fair value of commodity derivatives	9,124	620
OPEB expense	3,534	5,301
Pension expense	1,609	1,110
Accumulated increase in fair value of NMP2 Trust and OPEB Account	4,217	29,969
	<b>520,046</b>	<b>540,956</b>
<b>Net position:</b>		
Net investment in capital assets	77,241	(3,815)
Restricted	116,384	99,524
Unrestricted	301,225	376,479
	<b>494,850</b>	<b>472,188</b>
	<b>13,058,317</b>	<b>13,157,757</b>
<b>Total liabilities, deferred inflows of resources and net position</b>	<b>\$ 13,058,317</b>	<b>13,157,757</b>

See accompanying notes to consolidated financial statements.

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Consolidated Statements of Revenues, Expenses, and Changes in Net Position

Years ended December 31, 2018 and 2017

(Amounts in thousands)

	<b>2018</b>	<b>2017</b>
Operating revenues – electric sales	\$ 3,576,274	3,481,613
Operating expenses:		
Operations – power supply charge	1,675,640	1,631,475
Operations – power supply charge - property taxes	209,960	211,112
Operations and maintenance	632,068	638,944
Storm restoration	90,463	66,574
General and administrative	28,623	31,648
Depreciation and amortization	331,860	308,755
Payments in lieu of taxes and assessments	332,691	325,609
Total operating expenses	3,301,305	3,214,117
Operating income	274,969	267,496
Nonoperating revenues and expenses:		
Other income, net:		
Investment income	25,562	13,084
Grant income	43,238	42,058
Carrying charges on regulatory assets	24,078	25,365
Other	7,198	5,190
Total other income, net	100,076	85,697
Interest charges and (credits):		
Interest on long-term debt	361,283	342,552
Other interest	26,953	25,936
Other interest amortizations	(29,978)	(26,513)
Allowance for borrowed funds used during construction	(5,875)	(5,904)
Total interest charges and (credits)	352,383	336,071
Change in net position	22,662	17,122
Net position, beginning of year	472,188	455,066
Net position, end of year	\$ 494,850	472,188

See accompanying notes to consolidated financial statements.

**LONG ISLAND POWER AUTHORITY**  
(A Component Unit of the State of New York)

Consolidated Statements of Cash Flows

Years ended December 31, 2018 and 2017

(Amounts in thousands)

	<b>2018</b>	<b>2017</b>
Cash flows from operating activities:		
Operating revenues received	\$ 3,791,800	3,643,767
Paid to suppliers and employees:		
Operations and maintenance	(528,153)	(500,295)
Operations – power supply charge	(1,829,765)	(1,761,518)
Operations – power supply charge - property taxes	(209,960)	(211,112)
Payments in lieu of taxes	(454,529)	(429,998)
Collateral on commodity derivative transactions, net	12,185	(13,925)
PSEG Long Island pension funding	(40,000)	(35,000)
Net cash provided by operating activities	741,578	691,919
Cash flows from investing activities:		
Earnings received on investments	23,010	25,215
Restricted cash	(10,706)	48,241
Sale of restricted investment securities	180,600	121,426
Purchase of investment securities	(144,074)	(63,383)
Purchase of investment securities - OPEB Account	(94,069)	(120,163)
Other	450	(1,000)
Net cash (used in) provided by investing activities	(44,789)	10,336
Cash flows from noncapital financing related activities:		
Grant proceeds	38,458	29,794
Proceeds from credit facility draws and commercial paper program	840,000	130,000
Redemption of credit facility draws and commercial paper program	(965,820)	(175,305)
Net cash used in noncapital related activities	(87,362)	(15,511)
Cash flows from capital and related financing activities:		
Capital expenditures	(639,993)	(697,400)
Proceeds from the issuance of long-term debt	482,317	846,491
Payment to bond escrow agent to refinance bonds	—	(429,873)
Debt issuance costs	(2,777)	(3,507)
Other interest costs	(24,239)	(25,458)
Interest paid - Authority	(127,799)	(131,620)
Redemption of long-term debt - Authority	(69,880)	(117,250)
Interest paid - UDSA	(201,925)	(192,213)
Redemption of long-term debt - UDSA	(122,803)	(72,598)
Net cash used in capital and related financing activities	(707,099)	(823,428)
Net decrease in cash and cash equivalents	(97,672)	(136,684)
Cash and cash equivalents at beginning of year	425,472	562,156
Cash and cash equivalents at end of year	\$ 327,800	425,472
Reconciliation to net cash provided by operating activities:		
Operating income	\$ 274,969	267,496
Adjustments to reconcile operating income to net cash provided by operating activities:		
Depreciation and amortization	331,860	308,755
Other post-employment benefit non - cash expense	48,100	41,080
Nuclear fuel burned	10,716	13,646
Shoreham and VBA surcharges	49,289	45,814
Accretion of asset retirement obligation	1,196	3,645
Changes in operating assets and liabilities:		
Accounts receivable, net	(72,021)	43,706
Regulatory assets and liabilities	204,921	(130,435)
Fuel and material and supplies inventory	(3,285)	4,259
Accounts payable, accrued expenses and other	(104,167)	93,953
Net cash provided by operating activities	\$ 741,578	691,919

See accompanying notes to consolidated financial statements.

**LONG ISLAND POWER AUTHORITY OPEB TRUST**

Statements of Fiduciary Fund Position

December 31, 2018 and 2017

(Amounts in thousands)

	<u>2018</u>	<u>2017</u>
Assets		
Cash equivalents	\$ 18,785	18,651
Total assets	<u>18,785</u>	<u>18,651</u>
Liabilities	<u>—</u>	<u>—</u>
Total liabilities	<u>—</u>	<u>—</u>
Deferred inflows of resources	<u>—</u>	<u>—</u>
Total deferred inflows of resources	<u>—</u>	<u>—</u>
Net position	<u>18,785</u>	<u>18,651</u>
Net position - restricted for OPEB	<u>\$ 18,785</u>	<u>18,651</u>

For more information regarding the Authority's OPEB liabilities, see note 14(d) of the consolidated financial statements.

**LONG ISLAND POWER AUTHORITY OPEB TRUST**

Statements of Changes in Fiduciary Net Position

Years ended December 31, 2018 and 2017

(Amounts in thousands)

	<u>2018</u>	<u>2017</u>
Additions to net position attributed to:		
Contributions:		
Employer	\$ 1,845	19,071
Mark-to-market	(1,582)	—
Interest income	<u>603</u>	<u>123</u>
Total additions	<u>866</u>	<u>19,194</u>
Deductions from net position attributed to:		
Retirement benefits	732	543
Administrative expenses	<u>—</u>	<u>—</u>
Total deductions	732	543
Change in net position	134	18,651
Net position restricted for OPEB, beginning of year	<u>18,651</u>	<u>—</u>
Net position restricted for OPEB, end of year	<u>\$ 18,785</u>	<u>18,651</u>

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**(1) Nature of Operations**

The Long Island Power Authority (the Authority) is the owner of the electric transmission and distribution (T&D) system located in the Counties of Nassau and Suffolk (with certain limited exceptions) and a portion of Queens County known as the Rockaways (Service Area), and is responsible for supplying electricity to customers within the Service Area. The Authority also owns an undivided 18% interest in the Nine Mile Point Unit 2 (NMP2) generating facility, located in upstate New York, which is operated and managed by Exelon Corporation.

The Authority was established as a corporate municipal instrumentality of the State of New York (State), constituting a political subdivision of the State, created by Chapter 517 of the Laws of 1986 (the LIPA Act). As such, it is a component unit of the State and is included in the State's annual financial statements.

The Authority is also subject to the LIPA Reform Act (Reform Act) which was passed and codified as Chapter 173, Laws of New York on June 21, 2013 by the New York State Assembly and Senate. The Reform Act is divided into two parts, Part A and Part B.

Part A of the Reform Act addressed the reorganization of the Authority and changed its operating responsibilities and the relationship with its service provider, and Part B, referred to as the Securitization Law, created the Utility Debt Securitization Authority (UDSA). The Securitization Law provided a legislative foundation for the UDSA to issue restructuring bonds to allow the Authority to retire a portion of its outstanding indebtedness, providing debt service savings to the Authority's customers on a net present value basis. The restructuring bonds are repaid by irrevocable, non-bypassable restructuring charges on all the Authority's customers. The UDSA has a governing body separate from that of the Authority and has no commercial operations.

For a further discussion on the UDSA, see note 4.

The Authority has operating agreements with service providers to provide the majority of services necessary to serve the Authority's customers and power purchase agreements for the supply of electric energy. Below is a summary of the Authority's primary operating agreements:

*Amended and Restated Operations Services Agreement (OSA)*: Effective January 1, 2014, PSEG Long Island LLC (PSEG Long Island), a wholly owned subsidiary of Public Service Enterprise Group (PSEG), fully dedicated to the Authority's Long Island operations, provides operations, maintenance and related services for the T&D system under the OSA. The OSA expires December 31, 2025 and includes a provision that if PSEG Long Island achieves certain levels of performance during the first 10 years of the 12 year term, the parties will negotiate an eight-year extension on substantially similar terms and conditions. PSEG Long Island is paid a management fee and may earn incentive compensation related to specified performance metrics. During the years ended December 31, 2018 and 2017, PSEG Long Island was paid a management fee totaling approximately \$64 million per year. For 2017, PSEG Long Island was paid an incentive fee totaling approximately \$9.5 million. For 2018, PSEG Long Island may earn an incentive fee up to approximately \$9.7 million, which will be determined by June 2019.

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Essentially all costs of operating and maintaining the Authority's T&D system incurred by PSEG Long Island are passed through to and paid for by the Authority.

*Amended and Restated Power Supply Agreement (A&R PSA):* National Grid provides capacity and energy to the Authority from its oil and gas fired generating plants located on Long Island under the A&R PSA. The A&R PSA provides for the purchase of approximately 3,700 megawatts of capacity (and related energy to the extent needed) from these generating plants. The A&R PSA commenced May 28, 2013 and expires April 30, 2028. For a further discussion on the A&R PSA, see note 15.

In addition, the Authority is party to several power purchase agreements with other third-party generators for approximately 1,800 megawatts of capacity and related products.

*Fuel Management Agreement (FMA) and Power Supply Management Agreement (PSM):* PSEG Energy Resources and Trade LLC (PSEG ER&T) provides fuel management services for both the National Grid generating facilities and the other units in the Authority's energy supply portfolio. Certain other services related to power supply management and commodity activities are also provided by PSEG ER&T. During the years ended December 31, 2018 and 2017, PSEG ER&T was paid a management fee totaling approximately \$17 million. The agreements with PSEG ER&T expire December 31, 2025 and are subject to extension.

**(2) Summary of Significant Accounting Policies**

**(a) Reporting Entity**

The Authority complies with all applicable pronouncements of the Governmental Accounting Standards Board (GASB). In accordance with GASB Statement No. 62, *Codification of Accounting and Financial Reporting Guidance Contained in Pre-November 30, 1989 FASB and AICPA Pronouncements* (GASB Statement No. 62), the operations of the Authority are presented as an enterprise fund following the accrual basis of accounting in order to recognize the flow of economic resources.

The Authority's reporting entity is comprised of itself and (i) its operating subsidiary the Long Island Lighting Company (LILCO), a wholly owned subsidiary of the Authority doing business as LIPA and Power Supply Long Island, and (ii) the UDSA. All significant transactions between the Authority, LIPA and the UDSA have been eliminated. The Authority and its blended component units are referred to collectively as the Authority in the consolidated financial statements.

During 2017, the Authority established a legally separate trust under Section 115 of the Internal Revenue Code known as the Long Island Power Authority OPEB Trust (OPEB Trust) to fund the Authority's Other Post-Employment Benefit Plan (OPEB) that provides health care benefits for the Authority's qualified retired employees. The OPEB Trust is reported as a fiduciary component unit.

**(b) Estimates**

The accompanying financial statements were prepared in conformity with U.S. generally accepted accounting principles, which require management to make estimates and assumptions that affect the reported amounts of revenues and expenses during the reporting period as well as the reported

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amounts of assets and liabilities, including disclosure of contingent assets and liabilities, through the date of the financial statements. Actual results could differ from those estimates.

**(c) Cash, Cash Equivalents and Investments (including Restricted)**

Cash and cash equivalents, and restricted cash and cash equivalents, include all highly liquid financial instruments with a maturity of three months or less when purchased.

Funds held by the Authority are administered in accordance with the Authority's investment policies pursuant to Section 2925 of the New York State Public Authorities Law. These policies comply with the New York State Comptroller's investment guidelines for public authorities. Investments' carrying values are reported at fair market value.

Certain amounts have also been restricted for specific purposes. For a further discussion, see note 11.

**(d) Counterparty Collateral**

The Authority and certain of its counterparties require collateral posting for mark-to-market valuations that exceed established credit limits. At December 31, 2018 and 2017, the Authority was required to post \$7 million and \$20 million, respectively, of collateral to various counterparties, which is recorded as a current asset.

**(e) Fuel Inventory**

The Authority owns the fuel oil used in the generation of electricity at the facilities under contract. Fuel inventory represents the value of low sulfur diesel and other liquid fuels that the Authority had on hand at each year-end. Fuel inventory is valued using the weighted average cost method. At the time of consumption, an expense is recorded at the weighted average cost.

**(f) Material and Supplies Inventory**

The material and supplies inventory supports the operations and maintenance of the T&D system. The inventory is accounted for on a weighted average cost basis of accounting.

The Authority also owns 18% of the material and supplies inventory needed to support the operation of the NMP2 nuclear power station. As of December 31, 2018 and 2017, the value of the NMP2 inventory totaled approximately \$11 million.

**(g) Other Receivables and Long-Term Receivables**

The current portion of other receivables is comprised primarily of nonelectric billings such as insurance damage claims and mutual aid assistance.

The long-term portion of other receivables is comprised primarily of the net present value of reimbursable costs to construct the interconnection facilities related to the Neptune cable, which is to be paid to the Authority over a 20-year period that commenced in 2007.

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**(h) Unrealized Charges**

Unrealized charges consist primarily of the ineffective balance of interest rate and commodity derivative instruments.

**(i) Acquisition Adjustment**

The Acquisition Adjustment, an intangible asset, represents the difference between the purchase price paid and the net assets acquired from LILCO. The Acquisition Adjustment is being amortized on a straight-line basis through 2026 totaling approximately \$111 million annually.

**(j) Capital Lease Obligations**

Capital lease obligations represent the net present value of various contracts including capacity and/or energy of certain generation and transmission facilities and certain fleet vehicle leases. Upon satisfying the capitalization criteria, the net present value of the contract payments is included in both Utility Plant and Capital Lease Obligations.

The capacity and energy contracts are recognized in power supply expense in an amount equal to the contract payment of the capital leases, as allowed through the ratemaking process. The value of the asset and the obligation is reduced each month to properly reflect the remaining net present value of the asset and obligation.

For a further discussion on the capitalization of capacity and/or energy contracts, see note 15.

**(k) Borrowings**

Borrowings represent the unamortized balance of cash premiums received at the time of entering into certain financial derivative instruments. The Authority is amortizing such premiums over the life of the instrument in accordance with GASB Statement No. 53, *Accounting and Financial Reporting for Derivative Instruments* (GASB Statement No. 53).

**(l) Commodity and Financial Derivative Instruments**

Represents the amount the Authority believes it would receive or be required to pay in order to terminate its commodity and financial derivative instruments which approximates fair value.

**(m) Long-Term Liabilities and Unrealized Credits**

Long-term liabilities and unrealized credits consists primarily of the impacts of any changes resulting from updated asset retirement studies and deferred ineffective mark-to-market values on derivative transactions.

**(n) Claims and Damages**

Losses arising from claims including workers' compensation claims, property damage, and general liability claims are partially self-insured. Reserves for these claims and damages are based on, among other things, experience and expected loss.

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**(o) Revenues**

Operating revenues are comprised of cycle billings for electric service rendered to customers based on meter reads and the accrual of revenues for electric service rendered to customers not billed at year-end. The Authority accrues unbilled revenues by estimating unbilled consumption at the customer meter. Unbilled revenues totaled \$197 million and \$191 million as of December 31, 2018 and 2017, respectively.

**(p) Depreciation and Amortization**

The provisions for depreciation for utility plant result from the application of straight-line rates determined by age life studies of assets in service. The rates are applied to groups of depreciable properties. The average composite depreciation rates were 2.36% and 2.29% for 2018 and 2017, respectively. Property and equipment is being depreciated over its estimated useful life using the straight-line method.

Separately, capital lease assets and leasehold improvements are being amortized over the lesser of the life of the assets or the term of the lease, using the straight-line method.

The following estimated useful lives are used for utility property:

<u>Category</u>	<u>Useful life</u>
Generation – nuclear	46–54 years
Transmission and distribution	40–75 years
Common	5–55 years
Nuclear fuel in process and in reactor	6 years
Generation assets under capital lease	10–25 years

**(q) Asset Retirement Obligation**

The legal obligation associated with the retirement of a tangible, long lived asset resulting from the acquisition, construction, development and/or normal operation of the asset is referred to as an Asset Retirement Obligation (ARO). The Authority, as an 18% owner of NMP2, has a legal obligation to fund its share of the decommissioning costs of the nuclear power plant. The obligation to perform the asset retirement activity is unconditional even though uncertainty exists about the timing and method of settlement.

The Authority also has an ARO related to certain of its T&D utility assets. Although no legal requirement exists to remove such assets from service, a conditional obligation is present based on the premise that eventually these assets will be removed from service as a result of deterioration. Accordingly, the Authority established a liability for the portion of the costs attributable to this obligation.

The AROs are continually reviewed for adequacy and any necessary changes are updated annually.

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A summary of the ARO activity of the Authority for the years ended December 31, 2018 and 2017 is included below:

	<u>2018</u>	<u>2017</u>
Asset retirement obligation:		
Beginning balance	\$ 67,787	66,487
Change due to updates	(3,912)	(2,345)
Accretion expense	<u>3,608</u>	<u>3,645</u>
Balance at December 31	<u>\$ 67,483</u>	<u>67,787</u>

**(r) Long-Lived Assets**

Long-lived assets and purchased intangibles subject to amortization are reviewed for impairment whenever events or changes in circumstances indicate that there is a significant unexpected decline in the service utility of a capital asset.

**(s) Payments-in-Lieu-of-Taxes**

The Authority makes payments-in-lieu-of-taxes (PILOTs) for certain taxes previously paid by LILCO, including gross income, property, Metropolitan Transportation Authority, and certain taxes related to fuels used in utility operations. In addition, the Authority has entered into various PILOT arrangements for property it owns, upon which generation and transmission has been built.

**(t) Allowance for Borrowed Funds Used During Construction**

The allowance for borrowed funds used during construction (AFUDC) is the net cost of borrowed funds used for construction purposes. AFUDC is computed monthly on a portion of construction work in progress, and is shown as a net reduction in interest expense. The AFUDC rates were 4.44% and 4.38% for the years ended December 31, 2018 and 2017, respectively.

**(u) Income Taxes**

The Authority is a political subdivision of the State and, therefore, is exempt from Federal, state, and local income taxes.

**(v) Fair Value Measurements**

GASB Statement No. 72, *Fair Value Measurement and Application* (GASB Statement No. 72), establishes general principles for measuring fair value and standards of accounting and financial reporting for assets and liabilities measured at fair value. Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. Fair value is a market-based measurement, not an entity-specific measurement. For some assets and liabilities, observable market transactions or market information might be available; for others, it might not be available.

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The fair value hierarchy categorizes the inputs to valuation techniques used to measure fair value into three levels as described below:

Level 1 – measurements that use quoted prices (unadjusted) for identical assets or liabilities in active markets that the Authority has the ability to access at the measurement date.

Level 2 – measurements other than quoted prices included within Level 1 that are observable for an asset or liability, either directly or indirectly.

Level 3 – measurements that use unobservable inputs for an asset or liability. In some valuations, the inputs used may fall into different levels of hierarchy. In these cases, the financial instrument's level within the fair value hierarchy is based on the lowest level of input that is significant to the fair value measurement.

For a further discussion on the fair value hierarchy levels of the Authority's derivatives and investments, see notes 8 and 11.

**(w) Recent Accounting Pronouncements**

During 2017, the Authority implemented GASB Statement No. 75, *Accounting and Financial Reporting for Post-employment Benefits Other Than Pension Plans* (GASB Statement No. 75) refining GASB Statement No. 45, *Accounting and Financial Reporting by Employers for Post-employment Benefits Other Than Pensions* (GASB Statement No. 45). GASB Statement No. 75 concluded that OPEBs are a form of employee compensation to be recognized in the same period in which the compensated service is provided by the employees. GASB Statement No. 45 provided for an amortization for the unfunded actuarial accrued liabilities (or funding excess) of the plan over a period up to thirty years. GASB Statement No. 75 eliminated this phase in and requires the related expense be recognized in one year. During the adoption of GASB Statement No. 45, the Authority recognized the accrued OPEB liability in one year rather than in phases and therefore, there is no impact to prior periods upon adopting GASB Statement No. 75 and no retroactive application.

GASB Statement No. 84, *Fiduciary Activities*, addresses criteria for identifying fiduciary activities of all state and local governments. The focus of the criteria is generally on (1) whether a government is controlling the assets of the fiduciary activity and (2) the beneficiaries with whom a fiduciary relationship exists. Separate criteria are included to identify fiduciary component units and post-employment benefit arrangements that are fiduciary activities. The requirements of this Statement are effective for reporting periods beginning after December 15, 2018.

GASB Statement No. 87, *Leases*, addresses the recognition of certain lease assets and liabilities for leases that previously were classified as operating leases and recognized as inflows of resources or outflows of resources based on the payment provisions of the contract. It establishes a model for lease accounting based on the principle that leases are financings of the right to use an underlying asset. The requirements of this Statement are effective for reporting periods beginning after December 15, 2019.

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GASB Statement No. 88, *Certain Disclosures Related to Debt, including Direct Borrowings and Direct Placements* improves the information that is disclosed in notes to financial statements related to debt, including direct borrowings and direct placements. The requirements of this Statement are effective for reporting periods beginning after June 15, 2018.

GASB Statement No. 89, *Accounting for Interest Cost Incurred before the End of a Construction Period* requires that interest cost incurred before the end of a construction period be recognized as an expense in the period in which the cost is incurred. As a result, interest cost incurred before the end of a construction period will not be included in the historical cost of a capital asset reported in a business-type activity or enterprise fund. The requirements of this Statement are effective for reporting periods beginning after December 15, 2019.

GASB Statement No. 90, *Majority Equity Interests—an amendment of GASB Statements No. 14 and No. 61*, addresses the reporting a government's majority equity interest in a legally separate organization and the relevance of financial statement information for certain component units. The requirements of this Statement are effective for reporting periods beginning after December 15, 2018.

The Authority is currently evaluating the impact of these statements on the accompanying consolidated financial statements.

**(3) Rate Matters**

The Authority is empowered by the LIPA Act to set rates for electric service in its Service Area without being required to obtain the approval of the New York State Department of Public Service (DPS) or any other State regulatory body. The LIPA Act requires that any bond resolution of the Authority contain a covenant that it will at all times maintain rates, fees, or charges sufficient to pay the costs of: operation and maintenance of facilities owned or operated by the Authority; PILOTS; renewals, replacements, and capital additions; and the principal of, and interest on, any obligations issued pursuant to such resolution as the same become due and payable. In addition, the Authority must establish or maintain reserves or other funds, or accounts required or established by or pursuant to the terms of such resolution.

In 2013, the LIPA Reform Act established a rate review process that required the Authority and PSEG Long Island submit for review to DPS a three-year rate proposal for rates and charges that took effect on January 1, 2016. After the 2016-2018 period, the Authority and PSEG Long Island are only required to submit a proposed rate increase for DPS review if it would increase the rates and charges by an amount that would increase the Authority's annual revenues by more than 2.5%. The Authority's Board of Trustees (Board) retains final rate-setting power.

The Authority has a cost reconciliation mechanism, referred to as the Delivery Service Adjustment (DSA), to reconcile certain specified projected costs to actual costs in each year. The DSA provides cost recovery or refunding for certain items that vary due to external factors, including: debt service (variances in interest rates, capital expenditures and savings derived from the UDSA financings) and storm restoration expenditures (variances from the budget for storm restoration expenses). The DSA is calculated through the end of September each year, which allows for the bill impact to be known in advance of the annual budget approval. Any adjustments are reviewed by DPS and implemented on the following January 1st.

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The Authority also has a Revenue Decoupling Mechanism (RDM). All six of the major New York State electric utilities have RDMs within their tariffs for delivery service. Mechanically, RDMs function by comparing actual revenues with authorized revenues and crediting (or collecting) any differences to (or from) customers; it is intended to cover all sources of variances in delivery service revenues including, among other things, any net lost revenues attributable to the implementation of energy efficiency or net metering programs, any revenue variances caused by warmer or cooler than normal weather, and revenue variations that result from changes in economic conditions.

In addition to the items discussed above, the Authority's tariff also includes: (i) a Power Supply Charge to allow for adjustments to customers' bills to reflect changes in the cost of fuel, purchased power and related costs; (ii) a PILOTs recovery rider to allow rate adjustments to accommodate changes in revenue based PILOTs; (iii) a rider providing for the recovery of costs associated with the Shoreham Property Tax Settlement; (iv) a rider for the Authority's distributed energy resources program; (v) a rider providing for the collection of the New York State assessment imposed by the New York State Legislature; and (vi) a visual benefit assessment for certain customers in the Town of Southampton.

**(4) Component Unit – Utility Debt Securitization Authority**

The Reform Act created the Securitization Law, which established the UDSA to permit the issuance of restructuring bonds to allow the Authority to retire a portion of its outstanding indebtedness in order to provide debt service savings to the Authority's customers as measured on a net present value basis. The Securitization Law, as amended, allowed for a total issuance of up to \$4.5 billion of UDSA restructuring bonds. In 2017, all such authorization was exhausted.

Each issuance of restructuring bonds is separately secured by distinct collateral pursuant to a new financing order. Each such financing order authorizes restructuring bonds to be repaid pursuant to that financing order by an irrevocable contract right to impose, bill, and collect a non-bypassable consumption based Restructuring Charge from all existing and future retail customers taking electric transmission or distribution service within the Service Area from the Authority or any of its successors or assignees.

The Authority's Board adopted Financing Orders, which allowed the UDSA to issue restructuring bonds. All such financing orders are substantively the same, and each financing order permits the UDSA to issue restructuring bonds in an aggregate amount not to exceed the amount authorized by the Securitization Law. The issuance of the 2017 Restructuring Bonds utilized the available capacity of restructuring bonds permitted to be issued by the Securitization Law. Below is a summary of each financing order and amounts issued:

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<b>Financing Order</b>	<b>Date Issued</b>	<b>Initial Amount Issued</b>	<b>Net Present Value Savings</b>	<b>Restructuring Charge Rate Effective Date</b>
Financing Order No. 1	December 18, 2013	\$ 2,022,324	131,609	March 1, 2014
Financing Order No. 2	October 27, 2015	1,002,115	127,978	January 1, 2016
Financing Order No. 3	April 7, 2016	636,770	115,238	April 7, 2016
Financing Order No. 4	September 8, 2016	469,320	71,647	September 8, 2016
Financing Order No. 5	November 21, 2017	369,465	45,387	January 1, 2018
		<u>\$ 4,499,994</u>	<u>491,859</u>	

To pass through the benefits of securitization to customers, the Authority modified its rate structure to create restructuring offset charges, which is an amount equal to and opposite the Restructuring Charges; the net result is that the customer bill is less than it would have been absent the sale of restructuring bonds. The restructuring offset charges are adjusted coincident with changes to the Restructuring Charges to maintain that equality.

As discussed in note 2, UDSA is a component unit of the Authority and all of the activities and balances of the UDSA are blended into and reported as part of the Authority. See note 17 for consolidating condensed combining information.

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**(5) Regulatory Accounting**

The Authority's Board has approved various regulatory mechanisms that result in timing differences between the recognition of revenues and expenses for ratemaking purposes and treatment under generally accepted accounting principles for non-regulated entities. These actions result in regulatory assets and liabilities, which are summarized in the table below:

	<u>2018</u>	<u>2017</u>
Regulatory assets to be recovered within one year		
OSA – employee retirement benefits	\$ 54,006	67,381
Shoreham property tax settlement	46,233	45,274
Delivery service adjustment	28,845	29,424
Employee benefit plan settlement	15,634	21,634
Revenue decoupling mechanism	—	14,811
Power supply charge recoverable	—	4,660
Debt issuance costs	3,209	3,209
New York State assessment	1,681	2,443
Distributed energy resources charges	—	1,850
Southampton visual benefit assessment	909	948
Balance at December 31	<u>\$ 150,517</u>	<u>191,634</u>
Regulatory assets for future recovery		
OSA – employee retirement benefits	297,206	422,819
Shoreham property tax settlement	376,918	402,589
Employee benefit plan settlement	93,803	151,437
Power supply charge	48,551	53,211
Delivery service adjustment	78,529	58,712
Debt issuance costs	29,591	32,858
Unfunded actuarially determined reserves	8,018	8,018
Southampton visual benefit assessment	7,437	7,870
Balance at December 31	<u>\$ 940,053</u>	<u>1,137,514</u>
Regulatory liabilities payable within one year		
Revenue decoupling mechanism	47,644	—
Power supply charge refundable	13,378	14,910
Distributed energy resources charges	534	—
Balance at December 31	<u>\$ 61,556</u>	<u>14,910</u>
Regulatory credits		
Grants	498,322	501,404
Balance at December 31	<u>\$ 498,322</u>	<u>501,404</u>

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**(a) OSA – Employee Retirement Benefits**

The Authority is responsible for reimbursing PSEG Long Island for retirement benefit costs associated with the PSEG Long Island workforce. The retirement benefit plans are owned, sponsored, and the legal obligation of PSEG Long Island. However, in most cases, PSEG Long Island employee compensation costs are a contractual cost of the Authority under the OSA, including the cost for these retirement benefits (and any required pre-funding of such benefits).

The PSEG Long Island workforce includes both the Authority's former service provider electric-serving employees under the expired Management Services Agreement (MSA) with National Grid (referred to as transitioned employees) and PSEG Long Island employees hired since the beginning of the OSA on January 1, 2014. PSEG Long Island recognizes the assets and liabilities associated with the retirement benefit plans; however, they also recognize a receivable from the Authority for the unfunded portion of any liabilities resulting from the Authority's contractual obligation to fund these employee costs.

The balance of the OSA – Employee Retirement Benefits regulatory asset represents costs and liabilities which have been incurred but not yet collected in electric rates. This amount will be different from the Authority's liability to PSEG Long Island due to differences between funding and recovery levels.

A significant portion of this contractual liability resulted from the transitioned employees being protected against benefit losses from the Authority's change in service providers. The PSEG Long Island retirement plans ensure that transitioned employees earn a retirement benefit that, when combined with their accrued National Grid benefits, are equal to the benefit they would have received had the transitioned employees remained with National Grid. This provision created a prior service cost liability totaling \$442 million at the beginning of the OSA on January 1, 2014.

Retirement benefit obligations are future cash outlays that will be incurred as the PSEG Long Island employees receive retirement benefits and are therefore estimates of such costs. Differences between amounts collected from customers and amounts owed to PSEG Long Island for these benefits may arise from changes in asset values, plan amendments, interest rates, and actuarial assumptions, among other factors, which will be reflected in the balance of the regulatory asset.

The Authority contributes to a PSEG Long Island sponsored pension trust on an ongoing basis to pre-fund pension obligations. Additionally, the Authority sets aside funds in an OPEB Account to meet future healthcare and other post-employment benefit obligations. For a further discussion of the OPEB Account, see note 11.

**(b) Shoreham Property Tax Settlement (Settlement)**

In January 2000, the Authority reached an agreement with Suffolk County, the Town of Brookhaven, the Shoreham-Wading River Central School District, the Wading River Fire District and the Shoreham-Wading River Library District (which was succeeded by the North Shore Library District) (collectively, the Suffolk Taxing Jurisdictions) and Nassau County regarding the over assessment of the Shoreham Nuclear Power Station. Under the terms of the agreement, the Authority issued \$457.5 million of rebates and credits to customers over a five-year period. In order to fund such rebates

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and credits, the Authority used proceeds from its Capital Appreciation Bonds, Series 1998A Electric System General Revenue Bonds totaling \$146 million and Series 2000A Electric System General Revenue Bonds totaling \$325 million.

As provided under the Settlement, beginning in June 2003, Suffolk County customers' bills include a surcharge (the Suffolk Surcharge) to be collected over the succeeding approximate 25-year period to repay the debt service and issuance costs on the bonds issued by the Authority to fund the Settlement as well as the cost of pre-funding certain rebates and credits.

As rates are established at a level sufficient to recover all such costs identified above, the Authority recorded a regulatory asset. The balance remaining represents rebates and credits issued to customers, costs of administering the program, plus annual debt service costs on the bonds identified above, less surcharges collected since 2003.

**(c) Employee Benefit Plan Settlement**

The MSA between the Authority and National Grid provided, among other things, that upon termination of the MSA, when a third-party succeeded National Grid as the service provider, the successor would assume the rights and obligations of National Grid regarding certain employee benefit plan liabilities. The OSA with PSEG Long Island, however, did not require PSEG Long Island to assume the employee benefit plan assets and liabilities related to the MSA, which were co-mingled with those of other National Grid employees.

The Authority and National Grid and its affiliates signed an Employee Benefit Plan Settlement resolving the parties' respective employee benefit plan funding obligations for National Grid's electric-serving employees. The Authority's Board approved recovery of such costs from customers over a 10-year period, the remaining term of the OSA, as virtually all former employees of National Grid covered by these plans have been transitioned to PSEG Long Island and continue to serve our customers.

During 2018, the Authority received Board approval to reduce the employee benefit plan settlement regulatory asset by \$42 million for the amounts resulting from the final reconciliation of billings from the Authority's former service provider, which were significantly lower than initial estimated amounts.

As of December 31, 2018 and 2017, the employee benefit plan settlement balance totaled \$109 million and \$173 million, respectively.

**(d) Delivery Service Adjustment**

The DSA provides cost recovery or refunding for certain items that vary due to external factors, including: debt service (variances in interest rates, capital expenditures and savings derived from the UDSA financings) and storm restoration expenditures (variances from the amounts budgeted for storm restoration expenses). The DSA is calculated through the end of September each year. As of September 30, 2018, a regulatory asset totaling \$29 million was incorporated into the 2019 budget and electric rates. As of September 30, 2017, a regulatory asset totaling \$29 million was incorporated into the 2018 budget and electric rates.

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The remaining DSA recoverable balance is a result of the storm recovery rider component of the DSA. The recovery or refund of any storm restoration costs above or below the annual budgeted amount is amortized over a three year period. The balance carried forward for recovery in future years as of December 31, 2018 totaled approximately \$79 million.

**(e) Revenue Decoupling Mechanism**

The RDM ensures that only approved revenues for delivery service are collected from customers. The RDM compares actual revenues with authorized revenues and credits (or collects) any differences to (or from) customers. It is intended to cover all sources of variances in delivery service revenues including, among other things, any net lost revenues attributable to the implementation of energy efficiency or net metering programs, any revenue variances caused by warmer or cooler than normal weather, and revenue variations that result from changes in economic conditions.

The RDM is applied to delivery rates on a percentage basis and is reset at the beginning of each year to include the prior year surplus or shortfall between actual and authorized revenues for delivery service. In years when a multi-year rate plan is in effect, the RDM also utilizes such realized prior year surplus or shortfall to update delivery rates for the current year so as to minimize future variances between actual and authorized revenues. In no event may the Authority recover an amount that exceeds authorized delivery revenues.

The cumulative balance as of December 31, 2018 was approximately \$48 million due to customers and is set to be returned in 2019. The RDM balance as of December 31, 2017 was approximately \$15 million due from customers and was collected from customers in 2018.

**(f) Debt Issuance Costs**

The Authority established a regulatory asset for debt issuance costs incurred prior to 2018. The regulatory asset will be amortized as a component of the Authority's revenue requirement on a systematic basis over the life of the debt to which they relate.

**(g) Power Supply Costs Recoverable or Refundable**

The Authority's tariff includes a Power Supply Charge with a monthly reconciliation of power supply costs. For the year ended December 31, 2018, actual power supply costs were below amounts recovered in the Power Supply Charge, resulting in the recognition of a regulatory liability totaling \$13 million, which will be returned to customers in 2019. For the year ended December 31, 2017, actual power supply costs were below amounts recovered in the Power Supply Charge, resulting in the recognition of a regulatory liability totaling \$15 million, which was returned to customers in 2018.

Also recoverable through the Power Supply Charge are deferred transition costs associated with the transfer of the power supply management contract to PSEG ER&T. Collection of these costs totaling \$19 million are being recovered over an eleven-year period, as approved by the Authority's Board, commencing January 1, 2015, coincident with the contract beginning January 1, 2015 and expiring December 31, 2025. As of December 31, 2018 and 2017, the remaining balance of such costs totaled \$12 million and \$14 million, respectively.

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Amounts incurred related to various energy projects, the amortization of which is charged to power supply costs over the period of benefit (the life of the power purchase agreement) are also recoverable as a component of the Power Supply Charge. As of December 31, 2018 and 2017, the balance was \$28 million and \$30 million, respectively.

Unfunded actuarially determined potential costs relating to generation are a deferred component of the Power Supply Charge and total \$13 million. Such amounts will not be reflected in the Power Supply charge until settlement costs are paid.

**(h) Southampton Visual Benefit Assessment**

The Authority has recorded the incremental costs incurred to bury a portion of a transmission cable routed through the Town of Southampton (Town), which are being recovered from certain customers of the Town over a period of 20 years that began in 2009.

**(i) Regulatory Credits – Grants**

The Authority has received grants for storm restoration and storm hardening. The Authority's Board authorized the deferral of grant income recognition as a regulatory credit for grants related to capital expenditures for storm hardening. This regulatory credit will be deferred to match the depreciable lives of the related capital assets so as to recognize grant income over the same time period as the depreciation expense on the associated capital assets.

**(j) Distributed Energy Resources**

The Distributed Energy Resources (DER) charge recovers costs of the Authority's energy efficiency and renewable resources programs. The Authority funds significant energy efficiency programs. The costs of such programs are authorized by the Authority's Board annually in its approved budget and billed to customers through the DER charge based on energy usage.

**(k) Unfunded Actuarially Determined Reserves**

Unfunded actuarially determined reserves are amounts recorded for non-cash reserves that will not be recovered in rates but will remain deferred until settlement costs are paid. Such estimates were calculated by an actuary based on experience and are updated every three years.

**(6) Deferred Outflows and Deferred Inflows of Resources**

Certain assets and liabilities are reported as deferred outflows of resources (expenses or expenditures) and deferred inflows of resources (revenues) as follows:

**(a) Deferred Defeasance Costs on Debt Refunding**

Deferred defeasance costs on refunded debt represent the difference between the reacquisition price and the carrying amount of the refunded debt. These deferred costs are amortized as a component of interest expense over the shorter of the life of the old or new debt.

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**(b) Changes in Fair Value of Derivative Instruments**

Under hedge accounting, the accumulated changes in the mark-to-market valuation of a hedging derivative instrument that are deemed effective are reported as deferred inflows or deferred outflows of resources on the Statements of Net Position.

As the Authority follows GASB Statement No. 62, any changes in ineffective investment derivative instruments are reported as unrealized charges, as the Authority's Board has authorized the deferral of these unrealized gains or losses until realized, which corresponds to the period when they are recovered in rates.

**(c) Changes in Fair Market Value of NMP2 Decommissioning Trust and OPEB Account**

The Authority maintains a Trust for the decommissioning of NMP2. Separately, the Authority maintains an OPEB Account to set aside funds to meet future PSEG Long Island retirement benefit costs. These funds are reported at their fair market value and any unrealized gains or losses are recognized as a component of deferred inflows or deferred outflows of resources in accordance with the Authority's ratemaking process. For a further discussion on the Authority's NMP2 decommissioning obligations see notes 10 and 11. For a further discussion on the Authority's OPEB Account, see note 11.

**(d) Pension and OPEB**

In accordance with GASB Statement No. 68, *Accounting and Financial Reporting for Pensions—an amendment of GASB Statement No. 27* (GASB Statement No. 68), the Authority reports as deferred inflows of resources or deferred outflows of resources the difference between expected and actual experience, the net difference between projected and actual investment earnings on pension plan investments, differences between the Authority's contributions and the proportionate share of contributions, and changes in the Authority's contributions to the pension system subsequent to the measurement date.

In accordance with GASB Statement No. 75, the Authority reports the changes in the Authority's net OPEB liability that have not been included in OPEB expense as deferred inflows or deferred outflows of resources. Amounts included would result from changes of assumptions, the net difference between projected and actual earnings on the OPEB Trust and the Authority's contributions subsequent to the measurement date.

**(7) Federal Emergency Management Agency (FEMA) Grants**

In 2012, Superstorm Sandy caused significant damage to the Authority's Service Area resulting in the declaration of a federal major disaster area and making the Authority eligible for FEMA grants. The Authority and FEMA signed a Letter of Undertaking (LOU) that provides for a Public Assistance (PA) grant authorized under Section 428 of the Stafford Act (428 Grant Agreement) for a total eligible reimbursement of \$1.29 billion (90% of \$1.43 billion contained in the LOU). The Authority also signed a Community Development Block Grant (CDBG) to compensate for the nonfederal match of certain declared weather events including Superstorm Sandy, Hurricane Irene, and Snowstorm Nemo.

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The Authority received funding resulting from Superstorm Sandy costs totaling approximately \$1.11 billion under the FEMA 428 Grant Agreement, and \$90 million under CDBG. A portion of this grant agreement included funding for future storm hardening and mitigation efforts. The Authority maintains a restricted segregated account for any unused portion of the grant proceeds. As of December 31, 2018 and 2017, this segregated grant account totaled approximately \$104 million and \$276 million, respectively.

**(8) Derivative Instruments**

Derivative instruments are used by the Authority in its normal course of business to limit some of the volatility associated with interest rate changes and market price fluctuations in the purchase of fuel oil, natural gas and electricity. The Authority does not use derivative instruments for trading or speculative purposes. These contracts are evaluated pursuant to GASB Statement No. 53 to determine whether they meet the definition of derivative instruments, and whether they effectively hedge the expected cash flows associated with interest rate and commodity price risk exposures. The fair values of the Authority's derivatives are reported on the Statements of Net Position as either Commodity Derivative Instruments or Financial Derivative Instruments.

The Authority applies hedge accounting for derivative instruments that are deemed effective under GASB Statement No. 53. Under hedge accounting, changes in the fair value of such hedging derivative instruments are a component of deferred inflows or deferred outflows of resources on the Statements of Net Position until the contract is settled or hedge accounting is terminated. Derivative instruments that do not meet the definition of a hedging derivative instrument are economic hedges, intended to mitigate exposure to fluctuations in interest rates or commodity prices and are referred to as investment derivative instruments. Changes in the fair value of investment derivative instruments are deferred until settled or terminated in accordance with the Authority's ratemaking process.

All settlement payments or receipts for hedging and interest rate derivative instruments are recorded as either power supply expense for commodity derivatives or interest expense for interest rate derivatives on the Statements of Revenues, Expenses and Changes in Net Position in the period settled.

The Authority's interest rate derivative contracts are valued in accordance with GASB Statement No. 72 which establishes a fair value hierarchy that prioritizes the inputs to valuation techniques used to measure fair value into three levels: Level 1, Level 2 and Level 3 (as discussed in note 2). The interest rate derivative contracts are based on the present value of cash flows using the income approach. The interest rate derivative contracts are classified as Level 2 (as defined in note 2) as their valuation relies primarily on observable inputs.

The Authority's commodity derivative contracts are transacted both over-the-counter and through clearing exchanges and the valuations are based upon price quotes from exchanges and third-party brokers. The impacts of credit and nonperformance risk by either the Authority or its counterparty were not material to the financial statements as all the Authority's counterparties are highly-rated, as noted in the credit risk discussion below.

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The Authority's derivative instruments are as follows:

<u>Derivative instrument description</u>	<u>Fair value December 31, 2018</u>	<u>Net change in fair value</u>	<u>Fair value December 31, 2017</u>	<u>Type of hedge</u>	<u>Financial statement classification for changes in fair value</u>
Hedging derivative instruments:					
Financial derivatives:					
Total return swap	\$ 1,269	195	1,074	Cash flow	Deferred inflows
Total return swap	<u>1,971</u>	<u>493</u>	<u>1,478</u>	Cash flow	Deferred inflows
Total	<u>\$ 3,240</u>	<u>688</u>	<u>2,552</u>		
Commodity derivatives:					
Purchased power swaps	—	1,595	(1,595)	Cash flow	Deferred inflows/(outflows)
Natural gas basis swaps	<u>9,124</u>	<u>6,909</u>	<u>2,215</u>	Cash flow	Deferred inflows/(outflows)
Total	<u>\$ 9,124</u>	<u>8,504</u>	<u>620</u>		
Investment derivative instruments:					
Financial derivatives:					
Synthetic fixed-A	\$ (167,273)	22,549	(189,822)	N/A	Unrealized charges
Basis swap-A	(5,521)	2,291	(7,812)	N/A	Unrealized charges
Basis swap-B	(2,760)	1,146	(3,906)	N/A	Unrealized charges
Basis swap-C	<u>(2,760)</u>	<u>1,146</u>	<u>(3,906)</u>	N/A	Unrealized charges
Total	<u>\$ (178,314)</u>	<u>27,132</u>	<u>(205,446)</u>		
Commodity derivatives:					
Power – financial basis	(1,355)	(805)	(550)	N/A	Unrealized charges
Purchased power swaps	14,333	13,368	965	N/A	Unrealized charges
Natural gas options	—	801	(801)	N/A	Unrealized charges
Natural gas swaps	<u>(4,820)</u>	<u>1,212</u>	<u>(6,032)</u>	N/A	Unrealized charges
Total	<u>\$ 8,158</u>	<u>14,576</u>	<u>(6,418)</u>		

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In accordance with GASB Statement No. 72, the Authority determines the level of fair value hierarchy based on the lowest level input that is significant to the fair value measurement in its entirety. The following table presents the Authority's derivative instruments measured and recorded at fair value on the Statements of Net Position on a recurring basis and their level within the fair value hierarchy:

	2018			2017		
	Level 1	Level 2	Level 3	Level 1	Level 2	Level 3
Derivative assets:						
Financial derivatives	\$ —	3,240	—	—	2,552	—
Commodity derivatives	9,124	—	—	(3,817)	965	—
Derivative liabilities:						
Financial derivatives	—	(178,314)	—	—	(205,446)	—
Commodity derivatives	9,513	(1,355)	—	—	(2,946)	—
	<b>\$ 18,637</b>	<b>(176,429)</b>	<b>—</b>	<b>(3,817)</b>	<b>(204,875)</b>	<b>—</b>

The terms of the Authority's commodity derivative instruments outstanding as of December 31, 2018 and 2017 are summarized in the table below:

	Notional amount (in thousands)	Units	Beginning date	Ending date	Authority pays per unit (in dollars)		Authority receives	
2018:								
Natural Gas Swaps	171,223	Dthms	1/1/2019	12/1/2023	\$ 2.47	to	\$ 3.15	Natural Gas at Henry Hub
Natural Gas Basis Swaps	26,930	Dthms	1/1/2019	3/1/2021	\$ 2.11	to	\$ 8.84	Gas Basis between Henry Hub & Transco Z6, NY
Purchased Power Swaps <sup>(1)</sup>	9,407	Mwhs	1/1/2019	12/1/2023	\$ 22.50	to	\$ 46.50	Power at PJM West or JCPL
Purchased Power Basis	3,840	Mwhs	1/1/2019	12/1/2021	\$ (4.80)	to	\$ 7.35	Power Basis between PJM West to JCPL
2017:								
Natural Gas Swaps	100,715	Dthms	1/1/2018	12/1/2020	\$ 2.62	to	\$ 3.46	Natural Gas at Henry Hub
Natural Gas Basis Swaps	25,720	Dthms	1/1/2018	3/1/2020	\$ 2.34	to	\$ 8.13	Gas Basis between Henry Hub & Transco Z6, NY
Natural Gas Options	2,520	Dthms	1/1/2018	12/1/2018	\$ 3.75	to	\$ 4.25	Natural Gas at Henry Hub
Purchased Power Swaps <sup>(1)</sup>	5,010	Mwhs	1/1/2018	12/1/2020	\$ 22.60	to	\$ 52.50	Power at PJM West or JCPL
Purchased Power Basis	3,052	Mwhs	1/1/2018	12/1/2020	\$ (3.00)	to	\$ 4.50	Power Basis between PJM West to JCPL

<sup>(1)</sup> Purchased Power Swaps are executed as either a swap or synthetically, as a combination of a Power Heat Rate swap and a Natural Gas Swap

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The terms of the Authority's interest rate derivative instruments outstanding as of December 31, 2018 are summarized in the table below:

<u>Financial derivative</u>	<u>Effective date</u>	<u>Termination date</u>	<u>Authority pays</u>	<u>Authority receives</u>	<u>Original notional</u>	<u>Upfront cash payment</u>
Synthetic fixed-A	6/1/2003	12/1/2029	5.120 %	69.47% of 1-month LIBOR	\$ 587,225	\$ 106,400
Basis swap-A	7/1/2004	8/15/2033	SIFMA	70.50% of 1-month LIBOR	502,090	17,500
Basis swap-B	7/1/2004	8/15/2033	SIFMA	70.50% of 1-month LIBOR	251,045	8,750
Basis swap-C	7/1/2004	8/15/2033	SIFMA	70.50% of 1-month LIBOR	251,045	8,750
Total return swap	6/29/2015	6/29/2020	69.4% 1-month LIBOR+.40%	MMD +1.10% <sup>a</sup>	200,000	—
Total return swap	9/15/2016	9/1/2021	69.4% 1-month LIBOR+.30%	MMD +1.05% <sup>a</sup>	175,000	—

<sup>a</sup> Based on lowest long-term rating of the Authority

The Authority has outstanding Electric System General Revenue Bonds, Series 2015A Municipal Market Data (MMD) Floating Rate Notes (FRN) totaling \$200 million and Electric System General Revenue Bonds, Series 2016A MMD FRNs totaling \$175 million.

Immediately following direct placement of these FRNs, the Authority entered into five-year basis agreements whereby the counterparty agreed to pay the Authority an amount equal to the floating MMD FRN coupon, and the Authority agreed to pay the counterparty 69.4% of one-month London Interbank Offered Rate (LIBOR) plus basis points as specified in the table above. At the five-year expiration or the early termination of the agreements, the counterparty pays the Authority 90% of any increase in the market value of the MMD FRN and the Authority pays the counterparty 100% of any decrease in the market value of the MMD FRN, provided however, that if the Authority exercises its right to call or remarket the MMD FRN, the value of either agreement will be zero and neither party will have a payment obligation.

The Authority is exposed to the following risks related to derivative instruments as defined by GASB Statement No. 53:

**(a) Termination Risk**

Termination risk is the risk that a derivative could be terminated by a counterparty prior to its scheduled maturity due to a contractual event with the Authority owing a termination payment. As long as the Authority fulfills its obligations under the contracts, the counterparties do not have the right to terminate these agreements. The Authority believes that termination risk is low because the counterparties may terminate the agreements only upon the occurrence of specific events such as payment defaults, other defaults which remain uncured for 30 days after notice, bankruptcy or insolvency of the Authority (or similar events), or a downgrade of the Authority's and its insurers', if any, credit rating below investment grade. If, at the time of termination, the mark-to-market valuation of the derivative was a liability of the

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Authority, the Authority could be required to pay that amount to the counterparty. Termination risk associated with all of the Authority's derivatives is limited to the fair market value.

**(b) Basis Risk**

The Authority is exposed to basis risk on certain of its interest rate swaps because the variable-rate payments received by the Authority, and those paid either pursuant to the terms of the swap or on the associated variable rate debt, may differ. The terms of the interest rate swap transactions are summarized in the table above.

The Authority is exposed to basis risk on a portion of its commodity swaps when the commodity swap payment received is based upon a reference price in a market (e.g., natural gas priced at Henry Hub) that differs from the market in which the hedged item is expected to be bought (natural gas priced at New York City gate). If the correlation between these market prices should change substantially, the Authority may incur costs as a result of the hedging derivative instrument's inability to offset the price of the related commodity.

**(c) Collateral Posting**

Under certain conditions, the Authority may be required to post collateral related to its interest rate derivative instruments. Under the terms of its interest rate derivative agreements, collateral may be required if the Authority's credit ratings, and in the case of insured swaps, the credit ratings of any related interest rate swap insurer, fall below minimum levels as provided in each swap agreement, and the Authority fails to provide alternative credit enhancements. Collateral for its financial derivatives, if required, would approximate fair value. The Authority has never been required to post collateral under its interest rate derivative instruments.

The Authority has collateral requirements with commodity derivative counterparties in the Credit Support Annexes (CSA) of International Swap Deal Agreements (ISDA). Collateral is required to be posted with the counterparty when the negative fair value of the commodity derivative instrument exceeds the unsecured line of credit established with each counterparty as listed in the counterparty table below. In the event of collateral being posted, the value will equal the difference between the fair value and the amount of the unsecured line of credit. For exchange broker cleared derivative transactions, there is an initial margin requirement on day one of a trade that is calibrated to cover the expected cost of closing out the position in the event of a default. Collateral postings between the exchange clearing broker and the Authority each day thereafter are based on the fair value of the derivative instrument.

**(d) Credit Risk**

The risk that the counterparty (or its guarantor) will default on its obligations under the agreement. The Authority has sought to limit counterparty risk by contracting only with highly rated counterparties or requiring guarantees of the counterparty's obligations. The Authority has also made use of exchange cleared transactions for a portion of its commodity derivatives. The exchange uses a central clearing counterparty structure along with risk based margin requirements that limits credit risk exposure. Below

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is a table with the credit ratings and unsecured line of credit limits of the Authority's counterparties as of December 31, 2018 (amounts in millions):

Counterparty	Moody's	S&P	Counterparty's unsecured line of credit (\$M)
<b>Interest Rate Derivative Instruments:</b>			
JPMorgan Chase & Co. <sup>1</sup>	A2	A-	\$ —
Citibank, N.A. New York	A1	A+	—
Merrill Lynch Capital Services, Inc. <sup>2</sup>	A3	A-	—
UBS AG, Stamford Branch	Aa3	A+	—
Wells Fargo Bank, N.A.	Aa2	A+	—
<i>1 The original counterparty was Bear Stearns Capital Markets Inc.</i>			
<i>2 Ratings reflect the rating of Bank of America Corp.</i>			
<b>Commodity Derivative Instruments:</b>			
Bank of Nova Scotia	A2	A+	25
BP Energy Company	A2	A-	10
Citigroup Energy, Inc.	Baa1	BBB+	10
J. Aron & Company	A3	BBB+	40
JPMorgan Chase Bank, N.A. <sup>1</sup>	Aa2	A+	35
Macquarie Energy LLC	A2	A	10
Merrill Lynch Commodities, Inc. <sup>2</sup>	A3	A-	20
Morgan Stanley Capital Group Inc.	A3	BBB+	10
Next Era Power Marketing	Baa1	A-	5
Pacific Summit Energy LLC <sup>3</sup>	Baa1	A-	10
Societe Generale	A1	A	25
<i>1 Ratings reflect the rating of its parent company, JP Morgan Chase &amp; Co.</i>			
<i>2 Ratings reflect the rating of Bank of America Corp.</i>			
<i>3 Ratings reflect the rating of its parent company, Sumitomo Corporation of Americas</i>			

**(9) Utility Plant and Property and Equipment**

Additions to and replacements of utility plant are capitalized at original cost, which includes material, labor, indirect costs associated with an addition or replacement, plus an allowance for borrowed funds used during construction. The cost of renewals and betterments relating to units of property is added to utility plant. The cost of property replaced, retired, or otherwise disposed of is deducted from utility plant and, generally, together with dismantling costs less any salvage, is charged to accumulated depreciation. The cost of repairs and minor renewals is charged to maintenance expense. Mass properties (such as poles, meters, and wire) are accounted for on an average unit cost basis by year of installation.

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The following schedule summarizes the utility plant and property and equipment of the Authority as of December 31, 2018:

	<u>Beginning balances</u>	<u>Additions</u>	<u>Transfers/ Disposals</u>	<u>Ending balances</u>
Utility plant	\$ 7,621,220	519,977	(96,373)	8,044,824
Utility plant assets under capital lease	30,706	27,844	(248)	58,302
Office equipment, furniture, and leasehold improvements	17,825	358	(16,093)	2,090
Long lived assets – asset retirement cost	15,542			15,542
Accumulated depreciation	<u>(2,055,931)</u>	<u>(201,335)</u>	<u>142,542</u>	<u>(2,114,724)</u>
Total utility plant – net	<u>5,629,362</u>	<u>346,844</u>	<u>29,828</u>	<u>6,006,034</u>
Generation and transmission assets under capital lease	3,488,869	—	(292,486)	3,196,383
Accumulated depreciation	<u>(1,491,528)</u>	<u>(172,676)</u>	<u>292,486</u>	<u>(1,371,718)</u>
Total generation and transmission assets under capital lease – net	<u>1,997,341</u>	<u>(172,676)</u>	<u>—</u>	<u>1,824,665</u>
Construction work in progress	453,839	606,249	(519,977)	540,111
Retirement work in progress	<u>7,472</u>	<u>39,304</u>	<u>(34,248)</u>	<u>12,528</u>
	<u>461,311</u>	<u>645,553</u>	<u>(554,225)</u>	<u>552,639</u>
Totals	<u>\$ 8,088,014</u>	<u>819,721</u>	<u>(524,397)</u>	<u>8,383,338</u>

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The following schedule summarizes the utility plant and property and equipment of the Authority as of December 31, 2017:

	<u>Beginning balances</u>	<u>Additions</u>	<u>Transfers/ Disposals</u>	<u>Ending balances</u>
Utility plant	\$ 7,196,868	537,593	(113,241)	7,621,220
Utility plant assets under capital lease	32,144	—	(1,438)	30,706
Office equipment, furniture, and leasehold improvements	17,792	33	—	17,825
Long lived assets – asset retirement cost	15,542	—	—	15,542
Accumulated depreciation	<u>(2,039,547)</u>	<u>(186,328)</u>	<u>169,944</u>	<u>(2,055,931)</u>
Total utility plant – net	<u>5,222,799</u>	<u>351,298</u>	<u>55,265</u>	<u>5,629,362</u>
Generation and transmission assets under capital lease	3,751,349	—	(262,480)	3,488,869
Accumulated depreciation	<u>(1,563,055)</u>	<u>(190,953)</u>	<u>262,480</u>	<u>(1,491,528)</u>
Total generation and transmission assets under capital lease – net	<u>2,188,294</u>	<u>(190,953)</u>	<u>—</u>	<u>1,997,341</u>
Construction work in progress	352,962	638,470	(537,593)	453,839
Retirement work in progress	<u>4,496</u>	<u>57,784</u>	<u>(54,808)</u>	<u>7,472</u>
	<u>357,458</u>	<u>696,254</u>	<u>(592,401)</u>	<u>461,311</u>
Totals	<u>\$ 7,768,551</u>	<u>856,599</u>	<u>(537,136)</u>	<u>8,088,014</u>

**(10) Nine Mile Point Nuclear Power Station, Unit 2**

The Authority owns an undivided 18% interest in NMP2 in Oswego County, New York. The other 82% is owned by Constellation Energy Nuclear Group (CENG), a joint venture of Exelon Corporation (Exelon) and EDF, a large electric-power company headquartered in France. The unit is operated by Exelon.

NMP2 has a rated net capacity of approximately 1,300 megawatts. The Authority is entitled to 18% of the unit's capacity and energy; and is obligated to pay 18% of its operating and maintenance costs, nuclear fuel costs, and costs of capital additions. The Authority's net capital investment in NMP2, excluding nuclear fuel, was approximately \$540 million and \$545 million as of December 31, 2018 and 2017, respectively.

*Nuclear Plant Decommissioning*

The operating license for NMP2 expires on October 31, 2046.

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As of December 31, 2018, and 2017, the Authority's share of the estimated costs for decommissioning of the unit and restoration of the site is approximately \$63 million and \$61 million, respectively, and is included in the Statements of Net Position as a component of the ARO. The Authority maintains a nuclear decommissioning trust fund (NDTF) for its share of the decommissioning costs. As of December 31, 2018 and 2017, the NDTF had approximately \$125 million and \$132 million, respectively. The Authority believes that deposits to the fund, which are based on actuarial estimates, and the assumed investment returns of these funds during the term of the operating license, will be sufficient to meet its obligations.

*Liability for Nuclear Accidents*

The Federal Price-Anderson Act (Act) currently requires owners of nuclear power plants to pay an annual premium of \$450 million in private insurance for offsite liability coverage for each reactor site (not each reactor). Exelon maintains this coverage for the Nine Mile Point site, and the Authority reimburses Exelon for its proportionate share of the cost. The Act further stipulates that in the event offsite damages exceed the amount of private insurance coverage, each reactor licensee is retroactively liable for a prorated share of the excess. This liability is limited to \$121.3 million per reactor, payable at no more than \$19 million per reactor per incident per year. The Authority's maximum liability under this provision is \$21.8 million, payable at \$3.4 million per incident per year.

**(11) Cash, Cash Equivalents and Investments**

The majority of the Authority's cash equivalents and investments are either managed by an external investment manager or invested in mutual funds. The Authority's investment of funds is administered in accordance with the applicable provisions of State law, the Bond Resolution, certain banking agreements and the Authority's investment policy.

**(a) Unrestricted cash, cash equivalents and investments**

As of December 31, 2018 and 2017, the Authority had unrestricted cash, cash equivalents and investments totaling approximately \$952 million and \$828 million, respectively. The unrestricted funds primarily consist of the: Operating Fund, Construction Fund, Rate Stabilization Fund, and OPEB Account.

*OPEB Account*

Deposits made to the Authority's unrestricted OPEB Account are to fund the Authority's contractual obligations to employees of PSEG Long Island for certain post-employment benefits. The Authority has invested such funds, pursuant to the Authority's investment policy, in domestic and international stock mutual funds (65%), as well as inflation protected and bond market institutional mutual funds (35%). The Authority's policy is to periodically conduct an actuarial study to determine the appropriate level of funding to ensure the OPEB Account will be sufficient to meet this contractual obligation. As of December 31, 2018 and 2017, the OPEB Account balance totaled approximately \$272 million and \$195 million, respectively.

In the event that the Authority determines there are insufficient revenues to pay reasonable and necessary operating expenses or to make payments on bonds or parity obligations, after notifying the

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Finance and Audit Committee of the Authority's Board, the Authority may release funds from the OPEB Account for such purposes. As such, the OPEB Account is unrestricted.

The following tables summarize the Authority's unrestricted cash, cash equivalents and investments as of December 31, 2018 and 2017. The credit ratings listed are from Moody's, S&P and Fitch and the rating shown is the lowest rated obligation within each investment type.

<u>Deposit/investment type</u>	<u>Credit rating (if applicable)</u>	<u>Percent of portfolio</u>	<u>2018 Fair value</u>	<u>Cash and cash equivalents</u>	<u>Investments</u>
Operating Fund, Construction Fund, Rate Stabilization Fund and Other operating accounts:					
Cash and collateralized deposits		2 %	\$ 13,310	13,310	—
Discount notes and bonds:					
Certificates of deposit	A/A-1/A1/P-1/A+/F-1	9	60,784	18,214	42,570
Commercial paper	A-1/P-1/F-1	6	39,268	13,474	25,794
Corporate	BBB+/A-1/Baa1/P-1/BBB+/F-1+	13	95,662	2,307	93,355
Federal agencies	AA+/A-1+/Aaa/P-1	7	47,605	14,343	33,262
Foreign government bonds	AAA/Aaa/AAA	3	19,029	—	19,029
Municipal bonds	AA-/Aa3/AA-	1	3,343	—	3,343
Treasury bills and notes	AA+/A-1+/Aaa/P-1	39	265,064	130,277	134,787
Money-market mutual funds		20	135,875	135,875	—
Subtotal		100 %	679,940	327,800	352,140
OPEB Account:					
Mutual funds – equities		65 %	176,947	—	176,947
Mutual funds – fixed income		35	94,932	—	94,932
Subtotal		100 %	271,879	—	271,879
Total			\$ 951,819	327,800	624,019

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<u>Deposit/investment type</u>	<u>Credit rating (if applicable)</u>	<u>Percent of portfolio</u>	<u>2017 Fair value</u>	<u>Cash and cash equivalents</u>	<u>Investments</u>
Operating Fund, Construction Fund, Rate Stabilization Fund and Other operating accounts:					
Cash and collateralized deposits		5 %	\$ 30,481	30,481	—
Discount notes:					
Certificates of deposit		9	58,287	30,775	27,512
Commercial paper	P-1/A-1/F1	9	59,844	59,844	—
Corporate	Baa1/BBB+/A	14	90,274	10,010	80,264
Federal agencies	Aaa/AA+/AAA	4	26,225	—	26,225
Treasury bills and notes		26	167,647	93,582	74,065
Money-market mutual funds		33	200,774	200,774	—
Subtotal		100 %	633,532	425,466	208,066
OPEB Account:					
Mutual funds – equities		66 %	129,251	—	129,251
Mutual funds – fixed income		34	65,441	—	65,441
Money-market funds		—	6	6	—
Subtotal		100 %	194,698	6	194,692
Total			\$ 828,230	425,472	402,758

**(b) Restricted cash, cash equivalents and investments**

The Authority's restricted cash, cash equivalents and investments consist of: the Working Capital Requirements Account, the FEMA Grant Proceeds Fund, and the UDSA Collection Account.

*Restricted Cash for Working Capital Requirements*

In accordance with the OSA, the Authority is required to advance fund an account available to PSEG Long Island to pay for operating and capital expenditures that PSEG Long Island incurs as the Authority's agent in the management of the Authority's T&D system. The Authority is required to maintain three months of anticipated T&D operating and capital costs in this account in addition to separate storm, tax and power supply funding accounts. These accounts totaled \$199 million and \$212 million, as of December 31, 2018 and 2017, respectively, and were held in a collateralized deposit account. These funds are determined to be restricted due to the contractual obligation of the Authority to pre-fund the accounts but are considered by the Authority to be part of its working capital.

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*FEMA Grant Proceeds*

The Authority received in advance approximately \$502 million from FEMA which is restricted for storm hardening work on certain Authority assets. As of December 31, 2018, approximately \$104 million remains as long-term cash, cash equivalent and investments. The Authority funds are expended by PSEG Long Island for approved projects, and the Authority reimburses itself for approved projects as completed. The Authority has segregated FEMA funds for future use as required by the FEMA grant agreement.

*UDSA*

Restructuring charges are held by the Bond Trustee (Trustee) in the Collection Account to satisfy debt service on the Restructuring Bonds. The Collection Account for the bonds consists of four subaccounts: General Subaccount, Excess Funds Subaccount, Reserve Subaccount, and Upfront Financing Costs Subaccount. The Collection Account (other than the Upfront Financing Costs Subaccount) secures the Restructuring Bonds.

Restricted cash held by the Trustee, as of December 31, 2018 includes \$66 million in the General Subaccounts and \$58 million in the Reserve Subaccounts. Restricted cash, as of December 31, 2017, included \$49 million in the General Subaccounts, and \$60 million in the Reserve Subaccounts.

The UDSA has separate investment guidelines that are specifically designed to address its legal and contractual requirements. These guidelines mandate that such investments be matched to meet the obligations of the bond and interest payments.

The following tables summarize the Authority's restricted cash, cash equivalents and investments as of December 31, 2018 and 2017. The credit ratings listed are from Moody's, S&P and Fitch and the ratings shown are the lowest rated obligation within each investment type.

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<u>Deposit/investment type</u>	<u>Credit rating (if applicable)</u>	<u>Percent of portfolio</u>	<u>2018 Fair value</u>	<u>Cash and cash equivalents</u>	<u>Investments</u>
Restricted Working Capital Account and FEMA Grant Proceeds:					
Cash and collateralized deposits		66 %	\$ 198,611	198,611	—
Discount notes and bonds:					
Certificates of depos	A/A-1/A1/P-1/A+/F-1	7	21,593	4,837	16,756
Commercial paper	A-1/P-1/F-1	8	23,849	—	23,849
Corporate	BBB+/A-1/Baa1/P-1/BBB+/F-1+	10	31,617	—	31,617
Treasury notes	AA+/A-1+/Aaa/P-1	9	26,761	6,770	19,991
Total		100 %	\$ 302,431	210,218	92,213
UDSA:					
Money-market mutual funds		100 %	\$ 124,597	124,597	—

<u>Deposit/investment type</u>	<u>Credit rating (if applicable)</u>	<u>Percent of portfolio</u>	<u>2017 Fair value</u>	<u>Cash and cash equivalents</u>	<u>Investments</u>
Restricted Working Capital Account and FEMA Grant Proceeds:					
Cash and collateralized deposits		43 %	\$ 211,972	211,972	—
Discount notes and bonds:					
Certificates of deposit		16	77,457	2,502	74,955
Commercial paper	P-1/A-1/F1	12	58,164	—	58,164
Corporate	Baa1/BBB+/A	17	84,580	—	84,580
Federal agencies	Aaa/AA+/NR	2	10,030	—	10,030
Treasury notes		9	45,084	—	45,084
Money-market mutual funds		1	468	468	—
Total		100 %	\$ 487,755	214,942	272,813
UDSA:					
Money-market mutual funds		93 %	\$ 101,607	101,607	—
Cash		7	7,560	7,560	—
Total		100 %	\$ 109,167	109,167	—

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**(c) Risks**

The Authority's investment policy places a limit on investments by issuer and security type and addresses various risks described below. The Authority's Board may also specifically authorize, as it deems appropriate, other investments that are consistent with the Authority's investment objective. The Authority regularly reviews its investment policy to ensure continued effectiveness.

The risks associated with the Operating Fund, Rate Stabilization Fund, Construction Fund, Working Capital Requirements Fund, and Grant Proceeds Fund include:

*Concentration of Credit Risk:* The Authority's investment policies have established limits such that no more than 5% of the investment portfolio may be invested in the securities of any one non-government issuer. Additionally, no more than: (i) 40% of the portfolio may be invested in securities of any one Federal agency; (ii) 10% of the portfolio may be invested in supranationals, (iii) 40% of the portfolio may be invested in agency mortgage backed securities; (iv) 20% of the portfolio may be invested in repurchase agreements; and (v) 25% of the portfolio invested in money-market funds.

*Custodial Credit Risk:* Custodial credit risk for cash deposits (including demand deposits, time deposits and certificates of deposits issued by a commercial bank) is the risk that in the event of a bank failure, the Authority's deposits may not be recovered by depository insurance, and the deposits are not covered by collateralization. The Authority minimizes this risk by: i) investing in with low risk, highly rated financial institutions; ii) collateralizing its demand deposits and time deposits; and iii) investing in certificates of deposits with minimum short-term or long-term ratings of A-1/P-1, A-/A3, or their equivalent.

As of December 31, 2018 and 2017, the Authority had deposits of \$211 million and \$242 million, respectively, which are included in both restricted and unrestricted cash and cash equivalents.

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Custodial credit risk for investments is the risk that, in the event of the failure of the counterparty, the Authority will not be able to recover the value of its investments or collateral securities that are in the possession of the outside party. Investment securities are exposed to custodial credit risk if the securities are not registered in the name of the Authority and are held by the counterparty, the counterparty's trust department or agent.

The Authority manages custodial credit risk by utilizing the services of a third-party custodian who may not otherwise be a party to the transaction and hold securities in a separate account in the name of the Authority.

*Interest Rate Risk:* The Authority's investment portfolio is structured to ensure that sufficient cash is available to meet the anticipated liquidity needs of the Authority. Investment maturities may not exceed five and a half years from their purchase settlement date with the exception of U.S. government obligations and investment contracts. Additionally, maturities for repurchase agreements may not exceed 90 days, commercial paper may not exceed 270 days, and bankers' acceptances may not exceed 180 days.

In order to meet the OPEB Accounts' objective of funding future retirement benefit obligations while balancing long-term risk and return and providing reasonable diversification, the OPEB Account allocates its assets as follows: (i) domestic equities or mutual funds at 45%; (ii) international equities or mutual funds at 20%; (iii) fixed income investments or mutual funds at 20%; and (iv) fixed income investments – inflation protected securities or mutual funds at 15%.

The risks for the OPEB Account include:

*Credit Risk:* The Authority's permissible OPEB Account investments and related minimum credit ratings for fixed income investments include (i) U.S. government money-market funds (AAA<sub>m</sub> or Aaa-mf); (ii) mortgage pass-through obligations, collateralized mortgage obligations, and corporate mortgage obligations (AA or Aa); (iii) commercial paper (A-1 and P-1); (iv) domestic and Yankee certificates of deposits and bankers acceptances of domestic banks (A- or A3) and minimum short-term ratings of (A-1 or P-1); and (v) short-term money-market mutual funds, investment accounts, or sweep accounts that conform to the permissible investments or funds of securities designed to replicate the composition of benchmark market indices.

*Concentration of Credit Risk:* The Authority's OPEB Account investment policy has established limits such that no more than 5% of the fixed income portfolio may be invested in the securities of any one issuer with the exception of U.S. government/agency securities, no more than 25% of the portfolio may be invested in securities of issuers in the same industry with the exception of U.S. government/agency securities, no more than 20% of the portfolio may be invested in municipal securities, no more than 15% of the portfolio may be invested in notes and bonds rated in the BBB category and no more than 30% of the portfolio may be invested in notes or bonds rated in the BBB and A rating categories. The overall rating of the fixed income assets shall be at least in the A category.

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**(d) Nuclear Decommissioning Trust Fund (NDTF)**

The Authority maintains a separate investment policy applicable to the long-term investments in the NDTF which is held to meet the Authority's obligation with respect to the eventual decommissioning of the Authority's 18% interest in the NMP2 nuclear facility. The Authority's policy is to periodically conduct an actuarial study to determine the appropriate level of funding for the NDTF and to maintain an appropriate investment policy so that the value in the trust in 2046 (the year in which decommissioning activities are scheduled to begin), will be sufficient to meet decommissioning obligations.

The fund targets 50% fixed income investments or mutual funds and 50% domestic/international equities or mutual funds. The fixed income investments are managed to track the Barclay's Capital U.S. Float Adjusted Aggregate Bond Market Index or equivalent benchmarking index. The equity allocation is invested in index mutual funds based on widely held benchmark indices with a minimum of 50% allocated to equities of domestic firms.

*Credit Risk:* The guidelines attempt to minimize risk by limiting permissible fixed income investments to include: obligations of the U.S. government and its agencies; corporate or other obligations with a BBB-/Baa3 or better rating; mortgage obligations rated AA/Aa or better; commercial paper with a rating of A-1/P-1; certificates of deposit; Yankee certificates of deposit and bankers acceptances of domestic banks with a minimum rating of A-/A3 and minimum short-term ratings, if applicable, of A-1/P-1, short term money-market investment accounts that conform to the aforementioned permissible investments.

*Concentration of Credit Risk:* The investment policy has established limits for fixed income securities such that no more than: (i) 5% of the portfolio may be invested in the securities of any one issuer; (ii) 25% of the portfolio may be invested in securities of issuers in the same industry, with the exception of the U.S. government and its agencies securities; (iii) 20% of the portfolio may be invested in municipal securities; (iv) 15% of the portfolio may be invested in notes and bonds rated in the BBB category; and (v) 30% of the portfolio may be invested in notes and bonds rated in the BBB and A categories. The overall rating of the fixed income assets shall be at least in the A category.

*Custodial Credit Risk:* The NDTF does not have a separate policy relative to custodial credit risk of its deposits, and defers to the policies of the Authority.

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*Interest Rate Risk:* Due to the long-term nature of the NDTF, the fixed income portion of the portfolio is managed to track the Barclays Capital U.S. Float Adjusted Aggregate Bond Market Index. The portfolio's duration is required to fall within a range of 20% below the duration of the index and 10% above the duration of the index.

The NDTF had the following investments as of December 31:

<u>Investment type</u>	<u>2018 Fair value</u>	<u>Percent of portfolio</u>
Discount notes and bonds:		
Corporate	\$ 17,072	14 %
Federal agencies	17,109	14
Treasury notes and bonds	37,358	30
Mutual funds – domestic equities	52,482	41
Money-market mutual funds	1,198	1
Total	<u>\$ 125,219</u>	<u>100 %</u>

<u>Investment type</u>	<u>2017 Fair value</u>	<u>Percent of portfolio</u>
Discount notes:		
Corporate	\$ 24,313	18 %
Federal agencies	16,608	13
Treasury bills, notes and bonds	34,191	26
Mutual funds – domestic equities	55,172	42
Money-market mutual funds	1,918	1
Total	<u>\$ 132,202</u>	<u>100 %</u>

The overall duration of the NDTF fixed income portfolio averaged 5.8 years and 6.0 years as of December 31, 2018 and 2017, respectively.

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**(e) Fair Value of Investments**

The following table presents the Authority's unrestricted and restricted investments and NDTF, measured and recorded at fair value on the Statements of Net Position and their level within the fair value hierarchy (as previously defined in note 2):

Investment type	2018 Fair Value	Level 1	Level 2	Level 3
Unrestricted and restricted investments				
Discount notes:				
Certificates of deposit	\$ 59,326	—	59,326	—
Commercial paper	49,643	—	49,643	—
Corporate	124,972	—	124,972	—
Federal agencies	33,262	—	33,262	—
Foreign government bonds	19,029	—	19,029	—
Municipal bonds	3,343	—	3,343	—
Treasury bills and notes	154,778	154,778	—	—
Money-market mutual funds	271,879	271,879	—	—
Total	\$ 716,232	426,657	289,575	—
NDTF:				
Discount notes:				
Corporate	\$ 17,072	—	17,072	—
Federal agencies	17,109	—	17,109	—
Treasury notes and bonds	37,358	37,358	—	—
Mutual funds - domestic equities	52,481	52,481	—	—
Money-market mutual funds	1,199	1,199	—	—
Total	\$ 125,219	91,038	34,181	—

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Investment type	2017			
	Fair Value	Level 1	Level 2	Level 3
Unrestricted and restricted investments				
Discount notes:				
Certificates of deposit	\$ 102,467	—	102,467	—
Commercial paper	58,164	—	58,164	—
Corporate	164,844	—	164,844	—
Federal agencies	36,255	—	36,255	—
Treasury bills and notes	119,149	119,149	—	—
Money-market mutual funds	194,692	194,692	—	—
Total	\$ 675,571	313,841	361,730	—
NDTF:				
Discount notes:				
Corporate	\$ 24,313	—	24,313	—
Federal agencies	16,608	—	16,608	—
Treasury bills, notes and bonds	34,191	34,191	—	—
Mutual funds - domestic equities	55,172	55,172	—	—
Money-market mutual funds	1,918	1,918	—	—
Total	\$ 132,202	91,281	40,921	—

**(f) OPEB Trust**

During 2017, the Authority's Board approved the creation of a legally separate Section 115 Trust (OPEB Trust) separating its eligible employee and retiree OPEB obligation from the OPEB Account. Based on the funding analysis of an actuarial study, the Authority transferred approximately \$19 million from the existing unrestricted OPEB Account to the OPEB Trust, funding approximately 96% of its net OPEB liability. Additionally, during 2018, the Authority funded approximately \$2 million in the OPEB Trust, funding approximately 89% of its net OPEB liability.

The OPEB Trust is restricted to funding Authority employee and retiree OPEB obligations and is shown as a separate fiduciary component unit.

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**(12) Long-Term and Short-Term Debt**

**(a) Electric System General Revenue Bonds and Subordinated Revenue Bonds**

The Authority financed the cost of acquiring the T&D system from LILCO with Electric System General Revenue Bonds and Electric System Subordinated Revenue Bonds (collectively, the Bonds). Ongoing capital improvements are funded through the issuance of debt, except where grants or excess cash flow provide the ability to cash fund such expenditures. LIPA and the Authority entered into a Financing Agreement, whereby LIPA transferred to the Authority all of its right, title and interest in and to the revenues generated from the operation of the T&D system, including the right to collect and receive the same.

All of the Authority's bonds are secured by a Trust Estate as pledged under the Authority's Bond Resolution (the Resolution). The Trust Estate consists principally of the revenues generated by the operation of the T&D system and has been pledged to the Authority. The Authority's Revenue Bonds contain a rate covenant to ensure rates and charges are set at a level sufficient to fund annual operating and debt service expenses.

Below is a summary of the Authority's bond transactions completed during the years ended December 31:

<b>2018</b>			
Revenue Obligations:	2018 General Revenue Bonds	Par Amount:	\$ 430,000
Purpose:	Fund system improvements and pay issuance costs	Date Closed:	October 30, 2018
Revenue Obligations:	2014C General Revenue Bonds	Par Amount:	\$ 150,000
Purpose:	Remarket floating rate notes	Date Closed:	September 12, 2018
Revenue Obligations:	2015C General Revenue Bonds	Par Amount:	\$ 149,000
Purpose:	Remarket floating rate notes	Date Closed:	September 12, 2018

<b>2017</b>			
Revenue Obligations:	2017 General Revenue Bonds	Par Amount:	\$ 350,000
Purpose:	Fund system improvements and pay issuance costs	Date Closed:	December 14, 2017

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**(b) Component Unit Bonds – UDSA**

The Authority’s Board adopted the Financing Orders authorizing the issuance of Restructuring Bonds by the UDSA to allow the Authority to retire a portion of its outstanding indebtedness and to provide savings to the Authority’s customers as measured on a net present value basis. The Restructuring Bonds are not obligations of the Authority; however, the UDSA is a component unit of the Authority and consolidated into these financial statements.

Below is a summary of the UDSA bond transactions completed during the year ended December 31, 2017. There were no additional UDSA bond transactions completed in 2018:

<b>2017</b>			
Revenue Obligations:	2017 Restructuring Bonds	Par Amount:	\$ 369,465
Purpose:	Retire certain higher cost Authority bonds and pay issuance costs	Date Closed:	November 21, 2017
		NPV Savings:	\$ 45,387
		Escrow Deposit:	\$ 433,741
		Deferred Defeasance:	\$ 30,791

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	<u>Beginning balance</u>	<u>Accretion/ additions</u>	<u>Maturities</u>	<u>Repaid/ Refundings</u>	<u>Ending balance</u>	<u>Years of Maturity</u>	<u>Interest Rate (%)</u>	
General revenue bonds/notes:								
Series 1998A	\$ 98,010	5,209	11,650	—	91,569	2019-2028	5.28-5.30	(a)
Series 2000A	319,189	17,922	34,460	—	302,651	2019-2029	5.83-5.95	(a)
Series 2003C	36,645	—	—	—	36,645	2029	5.25	
Series 2010B	210,000	—	—	—	210,000	2020-2041	4.85-5.85	(c)
Series 2011A	18,315	—	—	—	18,315	2019-2038	4.00-5.00	(b)
Series 2012A	250,000	—	—	—	250,000	2037-2042	5.00	(b)
Series 2012B	179,035	—	—	—	179,035	2021-2029	5.00	(b)
Series 2014A	413,070	—	—	—	413,070	2034-2044	4.00-5.00	(b)
Series 2014B	164,950	—	18,515	—	146,435	2019-2026	2.76-4.13	(b)
Series 2014C FRN	150,000	—	—	—	150,000	2033	2.39	(b)(d)
Series 2015A1 FRN	51,000	—	—	—	51,000	2033	3.96	(b)(d)
Series 2015A2 FRN	149,000	—	—	—	149,000	2029	3.73	(b)(d)
Series 2015B	117,230	—	—	—	117,230	2019-2045	3.00-5.00	
Series 2015C FRN	149,000	—	—	—	149,000	2033	2.39	(b)(d)
Series 2016A FRN	175,000	—	—	—	175,000	2033	3.96	(b)(d)
Series 2016B	383,770	—	5,255	—	378,515	2020-2046	4.00-5.00	
Series 2017	350,000	—	—	—	350,000	2021-2047	5.00	
Series 2018	—	430,000	—	—	430,000	2022-2039	2.25-5.00	
Subtotal	<u>3,214,214</u>	<u>453,131</u>	<u>69,880</u>	<u>—</u>	<u>3,597,465</u>			
UDSA restructuring bonds:								
Series 2013T	469,786	—	46,433	—	423,353	2019-2023	2.04-3.44	
Series 2013TE	1,374,390	—	—	—	1,374,390	2023-2039	5.00	
Series 2015	1,002,115	—	—	—	1,002,115	2021-2035	3.00-5.00	
Series 2016A	636,770	—	—	—	636,770	2023-2033	5.00	
Series 2016B	409,870	—	76,370	—	333,500	2020-2033	4.00-5.00	
Series 2017	369,465	—	—	—	369,465	2020-2039	5.00	
Subtotal	<u>4,262,396</u>	<u>—</u>	<u>122,803</u>	<u>—</u>	<u>4,139,593</u>			
	<u>7,476,610</u>	<u>453,131</u>	<u>192,683</u>	<u>—</u>	<u>7,737,058</u>			
Plus: Net premium	694,804	52,317	58,972	—	688,149			
Less: Current maturities	(192,683)				(192,191)			
Total Long-term debt	<u>\$ 7,978,731</u>				<u>8,233,016</u>			

- a) Capital Appreciation Bonds  
b) Certain bonds of this series are subject to interest rate exchange agreements  
c) Taxable Build America Bonds subject to federal subsidy, rate shown is pre-subsidy level  
d) Variable rate (rate presented as of the December 31, 2018)

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The Authority's long-term debt as of December 31, 2017 consisted of the following:

	Beginning balance	Accretion/ additions	Maturities	Repaid/ Refundings	Ending balance	Years of Maturity	Interest Rate (%)	
General revenue bonds/notes:								
Series 1998A	\$ 113,100	5,973	12,970	8,093	98,010	2018-2028	5.28-5.30	(a)
Series 2000A	334,367	18,812	33,990	—	319,189	2018-2029	5.81-5.95	(a)
Series 2003C	36,645	—	—	—	36,645	2029	5.25	
Series 2006F	28,535	—	28,535	—	—	—	—	
Series 2008B	15,060	—	—	15,060	—	—	—	
Series 2009A	191,670	—	10,120	181,550	—	—	—	
Series 2010B	210,000	—	—	—	210,000	2020-2041	4.85-5.85	(c)
Series 2011A	221,635	—	7,730	195,590	18,315	2018-2038	4.00-5.00	(b)
Series 2012A	250,000	—	—	—	250,000	2037-2042	5.00	(b)
Series 2012B	179,035	—	—	—	179,035	2021-2029	5.00	(b)
Series 2014A	413,070	—	—	—	413,070	2034-2044	4.00-5.00	(b)
Series 2014B	164,950	—	—	—	164,950	2018-2026	2.36-4.13	(b)
Series 2014C FRN	150,000	—	—	—	150,000	2033	1.74	(b)(d)
Series 2015A1 FRN	51,000	—	—	—	51,000	2033	3.21	(b)(d)
Series 2015A2 FRN	149,000	—	—	—	149,000	2029	3.37	(b)(d)
Series 2015B	117,230	—	—	—	117,230	2019-2045	3.00-5.00	
Series 2015C FRN	149,000	—	—	—	149,000	2033	1.97	(b)(d)
Series 2016A FRN	175,000	—	—	—	175,000	2033	3.39	(b)(d)
Series 2016B	407,675	—	23,905	—	383,770	2018-2046	4.00-5.00	
Series 2017	—	350,000	—	—	350,000	2021-2047	5.00	
Subtotal	<u>3,356,972</u>	<u>374,785</u>	<u>117,250</u>	<u>400,293</u>	<u>3,214,214</u>			
UDSA restructuring bonds:								
Series 2013T	482,934	—	13,148	—	469,786	2018-2023	2.04-3.44	
Series 2013TE	1,374,390	—	—	—	1,374,390	2023-2039	5.00	
Series 2015	1,002,115	—	—	—	1,002,115	2021-2035	3.00-5.00	
Series 2016A	636,770	—	—	—	636,770	2023-2033	5.00	
Series 2016B	469,320	—	59,450	—	409,870	2018-2033	4.00-5.00	
Series 2017	—	369,465	—	—	369,465	2020-2039	5.00	
Subtotal	<u>3,965,529</u>	<u>369,465</u>	<u>72,598</u>	<u>—</u>	<u>4,262,396</u>			
	<u>7,322,501</u>	<u>744,250</u>	<u>189,848</u>	<u>400,293</u>	<u>7,476,610</u>			
Plus: Net premium	624,098	127,144	56,438	—	694,804			
Less: Current maturities	<u>(189,848)</u>				<u>(192,683)</u>			
Total Long-term debt	<u>\$ 7,756,751</u>				<u>7,978,731</u>			

- a) Capital Appreciation Bonds
- b) Certain bonds of this series are subject to interest rate exchange agreements
- c) Taxable Build America Bonds subject to federal subsidy, rate shown is pre-subsidy level
- d) Variable rate (rate presented as of the December 31, 2017)

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The debt service requirements for the Authority's consolidated bonds (excluding short-term debt such as general revenue notes, commercial paper notes, and revolving credit facility but including the USDA Restructuring Bonds) as of December 31, 2018 are as follows:

Due	Principal*	Interest	Net swap payments (receipts)	Total
2019	\$ 192,191	338,861	14,113	545,165
2020	225,417	337,735	14,130	577,282
2021	290,879	330,584	14,117	635,580
2022	298,241	320,039	14,113	632,393
2023	319,560	308,433	14,113	642,106
2024–2028	1,799,120	1,333,707	65,036	3,197,863
2029–2033	2,181,075	915,748	(7,747)	3,089,076
2034–2038	1,513,265	489,230	—	2,002,495
2039–2043	870,965	147,206	—	1,018,171
2044–2047	185,730	18,422	—	204,152
Total	\$ <u>7,876,443</u>	<u>4,539,965</u>	<u>127,875</u>	<u>12,544,283</u>

\* Interest on capital appreciation bonds is included in principal

Future debt service on the variable rate bonds and the floating rate portion of floating-to-fixed rate swaps is calculated using the relevant indices, including applicable spreads, as of December 31, 2018. Such rates, as shown in the long-term debt summary table, are assumed constant through maturity. For bonds subject to floating-to-fixed rate swap agreements, the "net swap payments" represent the fixed rate swap payment net of the assumed variable rate swap receipts for each agreement.

Terms by which interest rates change for variable rate debt are as follows:

The 2014C FRN Bonds bear interest at 70% of one-month LIBOR, plus the per annum spread of 65 basis points. The rate is determined on the second London Banking Day prior to the first business day of each month.

The 2015A-1 FRN Bonds bear interest at the sum of the prevailing 18-year AAA MMD general obligation index and the applicable spread of 100 basis points. The MMD FRN rate resets on the first business day of each month.

The 2015A-2 FRN Bonds bear interest at the sum of the prevailing 14-year AAA MMD general obligation index and the applicable spread of 100 basis points. The MMD FRN rate resets on the first business day of each month.

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The 2015C FRN Bonds bear interest at 70% of one-month LIBOR, plus the per annum spread of 88 basis points. The rate is determined on the second London Banking Day prior to the first business day of each month.

The 2016A FRN Bonds bear interest at the sum of the prevailing 17-year AAA MMD general obligation index and the applicable spread of 105 basis points. The MMD FRN rate resets on the first business day of each month.

**(c) Interest Rate Swap Agreements**

The Authority has entered into several interest rate swap agreements with various counterparties to modify the interest rate on outstanding debt. For a further discussion, see note 8.

**(d) Short-Term Debt**

The Authority's Board authorized the issuance of short-term borrowings in an amount not to exceed \$1.0 billion outstanding at any given time. The short-term borrowing program provides the Authority resources to meet interim working capital needs and cash flow requirements from unforeseen circumstances such as severe weather events. Among other factors, the Authority's operating and capital needs vary during the year given the seasonal nature of its sales.

The Authority's short-term borrowing program is supported by various bank agreements expiring from 2019 through 2022 which the Authority expects to renew or replace as needed prior to expiration. For a further discussion, see note 18.

The Authority's short-term debt as of December 31, 2018 consisted of the following instruments:

		<u>Maximum Authorized Par Amount</u>	<u>Beginning Balance</u>	<u>Additions</u>	<u>Payments</u>	<u>Ending Balance</u>	<u>Supporting Letter of Credit Expiration Date</u>
General revenue notes:							
Series 2013A	Revolving Credit Agreement	\$ 350,000	12,820	280,000	287,820	5,000	3/22/2019
Series 2015 CP 1AB	Commercial Paper	200,000	67,500	80,000	147,500	—	6/29/2021
Series 2015 CP 2AB	Commercial Paper	100,000	30,000	80,000	110,000	—	3/11/2022
Series 2015 CP 3AB	Commercial Paper	100,000	—	—	—	—	5/01/2020
Series 2015 CP 4AB	Commercial Paper	200,000	—	200,000	50,000	150,000	3/12/2021
Series 2015 CP 5AB	Commercial Paper	100,000	—	100,000	100,000	—	3/12/2021
Series 2015 CP 6AB	Commercial Paper	100,000	—	100,000	20,500	79,500	3/14/2022
Subordinated revenue notes:							
Series 2014 CP 1AB	Commercial Paper	—	150,000	—	150,000	—	NA
Series 2014 CP 2AB	Commercial Paper	—	100,000	—	100,000	—	NA
Total short-term debt		<u>\$ 1,150,000</u>	<u>360,320</u>	<u>840,000</u>	<u>965,820</u>	<u>234,500</u>	

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The Authority's short-term debt as of December 31, 2017 consisted of the following instruments:

		<u>Maximum Authorized Par Amount</u>	<u>Beginning Balance</u>	<u>Additions</u>	<u>Payments</u>	<u>Ending Balance</u>	<u>Supporting Letter of Credit Expiration Date</u>
General revenue notes:							
Series 2013A	Revolving Credit Agreement	\$ 350,000	—	130,000	117,180	12,820	3/22/2019
Series 2015GR1A/B CP	Commercial Paper	200,000	85,000	—	17,500	67,500	6/29/2021
Series 2015GR2A/B CP	Commercial Paper	75,000	70,625	—	40,625	30,000	3/29/2018
Series 2015GR3A/B CP	Commercial Paper	100,000	—	—	—	—	3/23/2020
Subordinated revenue notes:							
Series 2014 CP 1AB	Commercial Paper	200,000	150,000	—	—	150,000	3/15/2018
Series 2014 CP 2AB	Commercial Paper	100,000	100,000	—	—	100,000	3/15/2018
Total short-term debt		<u>\$ 1,025,000</u>	<u>405,625</u>	<u>130,000</u>	<u>175,305</u>	<u>360,320</u>	

**(e) Fixed Obligation Coverage Ratio**

The Authority follows the “public power model” of rate-setting which makes use of a fixed obligation coverage ratio to determine revenue requirements. The Authority’s methodology for calculating the fixed obligation coverage ratio excludes certain specified non-cash items from expenses. Depreciation expense, amortization of the Acquisition Adjustment and other regulatory assets, including the PSEG Long Island accrual expense for future OPEB benefit cost obligations, are excluded from the coverage calculation. The revenue section of this calculation includes revenues received from certain customers used to satisfy regulatory assets that were established when the Authority issued debt to fund these projects. For calculating the coverage ratios, such cash receipts are available to meet the Authority’s fixed obligation requirements as they are a component of cash flow, but are excluded from revenues for accrual accounting purposes.

Certain interest related costs, such as interest rate derivative costs, letters of credit and remarketing fees, bond administration costs, and interest related to customer deposits, are treated as ordinary operating expenses without coverage. The Authority and the UDSA principal and interest payments, including interest payments on the Authority’s short-term borrowing program and payments on capital leases, are included for coverage.

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The Authority's calculation of its fixed obligation coverage ratio, for the years ended December 31, 2018 and 2017, is shown below for informational purposes:

	<u>2018</u>	<u>2017</u>	
Operating revenues	\$ 3,576,274	3,481,613	(1)
Other income	75,998	60,332	(1)
Shoreham Settlement & VBA regulatory asset receipts	49,289	45,814	(2)
Total revenues and income	<u>3,701,561</u>	<u>3,587,759</u>	
Operating expenses	(3,301,305)	(3,214,117)	(1)
Add non cash expenses/(deduct cash funding):			
Depreciation and amortizations	331,860	308,755	(1)
Capital lease allowance	281,081	308,276	(3)
OPEB accrual expense	48,100	41,080	(2) (4)
Other interest expense	(24,239)	(25,458)	(2)
Total expenses	<u>(2,664,503)</u>	<u>(2,581,464)</u>	
<b>Funds available for fixed obligations</b>	<b>\$ 1,037,058</b>	<b>1,006,295</b>	
Principal – Authority	69,880	117,250	(2)
Interest – Authority	127,799	131,620	(2)
Principal – UDSA	122,803	72,598	(2)
Interest – UDSA	201,925	192,213	(2)
Capital lease obligations	281,081	308,276	(3)
<b>Total fixed obligation payments</b>	<b>\$ 803,488</b>	<b>821,957</b>	
<b>Fixed Obligation Coverage Ratios:</b>			
Excluding UDSA	1.49	1.33	(5)
Including UDSA	1.29	1.22	
<b>Board Approved Coverage Targets:</b>			
<b>Excluding UDSA</b>	<b>1.40</b>	<b>1.30</b>	
<b>Including UDSA</b>	<b>1.25</b>	<b>1.20</b>	

Notes:

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- (1) See Statements of Revenues, Expenses and Changes in Net Position
- (2) See Statements of Cash Flow s
- (3) See note 12 (f) (below )
- (4) The public power model, adopted by the Authority's Board, adds back the PSEG Long Island OPEB accrual operating expense as cash available to pay debt service. There are no mandatory pre-funding requirements for these OPEB expenses. The Authority voluntarily sets aside funds for OPEB obligations in an OPEB Account after payment of all operating expenses and debt service each year. See note 10 for more detail.
- (5) Excluding UDSA equal to (\$1,037,058 less (\$324,728))/(\$803,488 less (\$324,728))

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**(f) Changes in noncurrent liabilities**

The Authority's other long-term liabilities as of December 31, 2018 were comprised of the following:

	<b>Beginning Balance</b>	<b>Increases</b>	<b>Decreases</b>	<b>Ending Balance</b>
Long-term liabilities and unrealized credits	\$ 39,559	13,333	(9,750)	43,142
Borrowings	77,307	—	(5,051)	72,256
Claims and damages	57,676	18,261	(8,090)	67,847
Capital lease obligations	1,843,515	140,367	(281,081)	1,702,801
Total other long-term liabilities	<u>\$ 2,018,057</u>	<u>171,961</u>	<u>(303,972)</u>	<u>1,886,046</u>

The Authority's other long-term liabilities as of December 31, 2017 were comprised of the following:

	<b>Beginning Balance</b>	<b>Increases</b>	<b>Decreases</b>	<b>Ending Balance</b>
Long-term liabilities and unrealized credits	\$ 69,933	8,306	(38,680)	39,559
Borrowings	82,241	—	(4,934)	77,307
Claims and damages	41,430	49,591	(33,345)	57,676
Capital lease obligations	2,021,284	130,507	(308,276)	1,843,515
Total other long-term liabilities	<u>\$ 2,214,888</u>	<u>188,404</u>	<u>(385,235)</u>	<u>2,018,057</u>

**(13) OSA – Employee Retirement Benefits Obligations**

The cost to employ PSEG Long Island's workforce, including employee pension and other post-employment benefits, are a "pass through expenditure" and contractual liability of the Authority. PSEG Long Island employee pension and OPEB obligations are legal obligations of PSEG Long Island, and the employees covered by these plans are PSEG Long Island employees.

When transitioning National Grid employees to PSEG Long Island, to ensure the National Grid workforce serving the Authority was protected against benefit losses from the transition, the PSEG Long Island benefit plans credited National Grid transitioned employees for service prior to the OSA for purposes such as eligibility, participation, vesting, company match levels, subsidies (including any type of early retirement subsidy) and attainment of retirement dates. In addition, those employees who immediately prior to the OSA effective date could have become eligible to participate in the National Grid post-employment health and life insurance benefit plans, are entitled to receive substantially equivalent post-employment health and life insurance benefits from PSEG Long Island. This arrangement created a prior service cost obligation totaling \$126 million for pensions and \$316 million for OPEBs as of January 1, 2014. The following table

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provides a rollforward of the changes to the benefit obligations and the fair value of the plan assets during each of the years ended December 31, 2018 and 2017.

The table also provides the funded status of the PSEG Long Island plans and the amounts recognized as the long-term contractual liability on the Statements of Net Position at the end of both years.

	<b>Pension benefits</b>		<b>Post-employment benefits</b>	
	<b>2018</b>	<b>2017</b>	<b>2018</b>	<b>2017</b>
Benefit obligation at beginning of year	\$ 320,522	262,462	541,558	452,406
Service cost	29,856	26,845	18,628	14,618
Interest cost	11,754	10,942	19,906	19,016
Actuarial loss (gain)	(38,001)	21,726	(73,755)	59,758
Benefits paid	(2,631)	(1,453)	(5,985)	(4,240)
Plan amendment	—	—	—	—
Benefit obligation at end of year	<u>321,500</u>	<u>320,522</u>	<u>500,352</u>	<u>541,558</u>
Fair value of assets at beginning of year	191,219	134,148	—	—
Actual return on plan assets	(15,912)	23,524	—	—
Employer contribution	40,000	35,000	5,985	4,240
Gross benefits paid	<u>(2,631)</u>	<u>(1,453)</u>	<u>(5,985)</u>	<u>(4,240)</u>
Fair value of assets at end of year	<u>212,676</u>	<u>191,219</u>	<u>—</u>	<u>—</u>
Authority unfunded obligation	<u>\$ (108,824)</u>	<u>(129,303)</u>	<u>(500,352)</u>	<u>(541,558)</u>

The table does not reflect the balance of the Authority's OPEB Account, which was established to prefund the contractual liability for such post-employment benefits.

The Authority's Board authorized the creation of an OPEB Account to allow the Authority to segregate funds to meet future OPEB obligations for PSEG Long Island employees. As of December 31, 2018 and 2017, the Authority had on deposit in the OPEB Account approximately \$272 million and \$195 million, respectively. For a further discussion, see note 11.

The contractual liability related to pension and post-employment benefits decreased during 2018 due to the update of certain assumptions regarding the census data, claims costs, excise taxes, and the discount rate. These changes resulted in a net actuarial gain of \$38 million for pension benefits and \$74 million for post-employment benefits as follows:

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	<u>Pension benefits</u>	<u>Post-employment benefits</u>
Updated census data	\$ 6.9	3.1
Updated assumptions	(1.4)	8.7
Updated medical trend	N/A	(7.1)
Impact of adopting granular method	1.0	1.9
Discount rate changes (see table below)	<u>(44.5)</u>	<u>(80.4)</u>
Total (gain)/loss	<u>\$ (38.0)</u>	<u>(73.8)</u>

The actuarial valuations related to pension and post-employment benefits involve estimates and assumptions regarding the probability of events in the future. Below are the weighted average assumptions used to calculate actuarial present values of benefit obligations as of December 31, 2018 and 2017:

	<u>Pension benefits</u>		<u>Post-employment benefits</u>	
	<u>2018</u>	<u>2017</u>	<u>2018</u>	<u>2017</u>
Discount rate	4.60 %	3.90 %	4.67 %	3.96 %
Rate of compensation increase	3.25 %	3.25 %	3.25 %	3.25 %

*Pension Plan Assets*

During 2018 and 2017, the Authority provided \$40 million and \$35 million, respectively, to PSEG Long Island for deposit in its pension plan trust fund. The trust is sponsored, overseen and managed by the PSEG Thrift & Pension Investment Committee. The benefit plan assets are maintained separately and are not commingled with other PSEG plans. The benefit plan assets are not assets of the Authority and, therefore, are not reflected on the Statements of Net Position. These assets, however, reduce the Authority's contractual obligation to PSEG Long Island for the benefit obligations of the PSEG Long Island employees. The following table outlines the PSEG Long Island pension assets as of December 31, 2018 and 2017:

<u>Investment type</u>	<u>2018</u>		<u>2017</u>	
	<u>Amount</u>	<u>Allocation</u>	<u>Amount</u>	<u>Allocation</u>
Equity	\$ 140,700	66.2%	137,228	71.8%
Fixed income	71,428	33.6	53,599	28.0
Other	<u>548</u>	<u>0.2</u>	<u>392</u>	<u>0.2</u>
	<u>\$ 212,676</u>	<u>100.0%</u>	<u>191,219</u>	<u>100.0%</u>

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**(14) Authority Employee Benefits**

All full-time Authority employees must participate in one of two employee retirement plans offered by the Authority, either: (i) the New York State and Local Retirement System (the Retirement System); or (ii) the New York State Voluntary Defined Contribution Plan (VDC).

**(a) Pension Plans**

*(i) Plan Description*

The Retirement System is a cost-sharing multiple-employer defined benefit retirement system. The net position of the Retirement System is held in the New York State Common Retirement Fund (the Fund), which was established to hold all net assets and record changes in fiduciary net position allocated to the Retirement System. The Comptroller of the State of New York serves as the trustee of the Fund and is the administrative head of the Retirement System. Retirement System benefits are established under the provisions of the New York State Retirement and Social Security Law (NYSRSSL). Once a public employer elects to participate in the Retirement System, the election is irrevocable. The New York State Constitution provides that pension membership is a contractual relationship and plan benefits cannot be diminished or impaired. Benefits can be changed for future members only by enactment of a State statute. The Retirement System is included in the State's financial report as a pension trust fund. That report, including information with regard to benefits provided, may be found at [www.osc.state.ny.us/retire/publications/index.php](http://www.osc.state.ny.us/retire/publications/index.php) or obtained by writing to the New York State and Local Retirement System, 110 State Street, Albany, NY 12244.

The Retirement System uses a tier concept to distinguish membership classes (i.e. tiers 1 through 6) with tier membership based on the date an employee joins the Retirement System. The Retirement System is noncontributory for tier 1 and 2 employees who joined on or prior to July 27, 1976. Tiers 3 and 4 employees, who joined between July 28, 1976 and December 31, 2009 and have less than ten years of service, contribute 3% of their salary. Employees who joined the Retirement System after January 1, 2010 are Tier 5 employees and contribute 3% of their salary during their entire length of service. Employees who joined the Retirement System on or after April 1, 2012, are Tier 6 employees and must contribute for their entire length of service. Tier 6 contribution rates vary based on annual compensation. From April 1, 2012 through March 31, 2013, Tier 6 employees contributed 3% of their salary. After March 31, 2013, during the first three years of membership, the Tier 6 employee contribution rate is based on the employee's annual wage. After this three-year period, the employee's contribution rate will be based on what was actually earned two years prior. Beginning April 1, 2013, the contributions rate for tier 6 employees varies between 3% and 6% depending on an employee's actual salary.

Members become vested in the pension plan after ten years of service and generally are eligible to receive benefits at age 55. The benefit is generally 1.66% of final average salary (FAS), times the number of years of service, for members who retire with less than 20 years of service, and 2% of FAS for members who retiree with 20 or more years of service. The Retirement System provides an annual automatic cost of living adjustment to members or surviving spouses based on certain eligibility criteria.

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(ii) *Ordinary Disability Benefits*

Generally, ordinary disability benefits, usually one-third of salary, are provided to eligible members after ten years of service; in some cases, they are provided after five years of service.

(iii) *Accidental Disability Benefits*

For all eligible Tier 1 and Tier 2 members, the accidental disability benefit is a pension of 75% of final average salary, with an offset for any Workers' Compensation benefits received. The benefit for eligible Tier 3, 4, 5 and 6 members is the ordinary disability benefit with the years-of-service eligibility requirement dropped.

(iv) *Ordinary Death Benefits*

Death benefits are payable upon the death, before retirement, of a member who meets eligibility requirements. The first \$50,000 of an ordinary death benefit is paid in the form of group term life insurance. The benefit is generally three times the member's annual salary. For most members, there is also a reduced post-employment ordinary death benefit available.

(v) *Post-employment Benefit Increases*

A cost-of-living adjustment is provided annually to: (i) all pensioners who have attained age 62 and have been retired for five years; (ii) all pensioners who have attained age 55 and have been retired for ten years; (iii) all disability pensioners, regardless of age, who have been retired for five years; (iv) Retirement System recipients of an accidental death benefit, regardless of age, who have been receiving such benefit for five years; and (v) the spouse of a deceased retiree receiving a lifetime benefit under an option elected by the retiree at retirement. An eligible spouse is entitled to one-half the cost-of-living adjustment amount that would have been paid to the retiree when the retiree would have met the eligibility criteria.

(vi) *Contributions*

The Retirement System is non-contributory for employees who joined before July 27, 1976. Later employees contribute 3% of their salary for the first ten years of membership, and employees who joined on or after January 1, 2010 generally contribute between 3% to 6% of their salary for their entire length of service. Under the authority of the NYSRSSL, the Comptroller annually certifies the actuarially determined rates expressly used in computing the employers' contributions based on salaries paid during the Retirement Systems' fiscal year ending March 31. The Authority's contributions for the year ended December 31, 2018, 2017 and 2016, were equal to 100% of the contributions required, and were \$0.61 million, \$0.56 million, and \$0.2 million respectively.

(vii) *Pension Liabilities, Pension Expense, and Deferred Outflows of Resources and Deferred Inflows of Resources Related to Pensions*

At December 31, 2018 and 2017, the Authority reported a liability of \$0.31 million and \$1.0 million, respectively, for its proportionate share of the Retirement System net pension liability. The net pension liability was measured as of April 1, 2018 and 2017, and the total pension liability used to calculate the net pension liability was determined by an actuarial valuation as of April 1, 2017 with

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update procedures used to rollforward the total pension liability to March 31, 2018. The Authority's proportionate share of the net pension liability was based on a projection of the Authority's long-term share of contributions to the pension plan relative to the projected contributions of all participating members, actuarially determined.

At December 31, 2018 and 2017, the Authority's proportionate share was 0.01% of the Retirement System net pension liability.

For the year ended December 31, 2018 and 2017, the Authority recognized pension expense of \$0.76 million and \$0.20 million, respectively. As of December 31, 2018 and 2017, the Authority reported deferred outflows of resources and deferred inflows of resources related to pensions from the following sources:

	<b>2018</b>		<b>2017</b>	
	<b>Deferred Outflows of Resources</b>	<b>Deferred Inflows of Resources</b>	<b>Deferred Outflows of Resources</b>	<b>Deferred Inflows of Resources</b>
Difference between expected and actual expense	\$ 111	91	24	142
Net difference between projected and actual earnings on investments	450	889	187	—
Changes in assumptions	206	—	321	—
Net difference between the Authority's contributions and proportionate share of contributions	218	629	99	968
The Authority's contributions subsequent to the measurement date	609	—	559	—
	<u>\$ 1,594</u>	<u>1,609</u>	<u>1,190</u>	<u>1,110</u>

The net amount of the Authority's balances of deferred outflows of resources and deferred inflows of resources related to pensions will be recognized in pension expense as follows:

Plan years ended December 31:	
2019	\$ (233)
2020	(145)
2021	(175)
2022	(73)
2023	—
Thereafter	—
	<u>\$ (626)</u>

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(viii) *Actuarial Assumptions*

The total pension liability as of the measurement date was determined by using an actuarial valuation as of April 1, 2017, with update procedures used to rollforward the total pension liability to the measurement date. The actuarial valuation used the following assumptions:

Measurement date:	March 31, 2018
Actuarial valuation date:	April 1, 2017
Actuarial cost method:	Aggregate Cost Method
Inflation:	2.50 %
Salary scale:	3.80 %
Investment rate of return, including inflation (compounded annually, net of expenses):	7.00 %
Cost of living adjustments, annually:	1.30 %
Decrement tables:	April 1, 2010 – March 31, 2015 Retirement System's Experience
Mortality improvement:	Society of Actuaries Scale MP-2014

The long-term expected rate of return on pension plan investments was determined in accordance with Actuarial Standard of Practice (ASOP) No. 27, Selection of Economic Assumptions for Measuring Pension Obligations. ASOP No. 27 provides guidance on the selection of an appropriate assumed investment rate of return. Consideration was given to expected future real rates of return (expected returns, net of pension plan investment expense and inflation) for equities and fixed income as well as historical investment data and pension plan performance.

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Best estimates of arithmetic real rates of return for each major asset class are summarized below:

<u>Asset class</u>	<u>Long-term expected real rate of return (%)</u>
Domestic equity	4.55
International equity	6.35
Private equity	7.50
Real estate	5.55
Absolute return strategies	3.75
Opportunistic portfolio	5.68
Real assets	5.29
Bonds and mortgages	1.31
Cash	(0.25)
Inflation-indexed bonds	1.25

(ix) *Discount Rate*

The discount rate used to calculate the total pension liability was 7.0%. The projection of cash flows used to determine the discount rate assumes that contributions from pension plan members will be made at the current contribution rates and that contributions from employers will be made at statutorily required rates, actuarially determined. Based upon those assumptions, the Retirement System's fiduciary net position was projected to be available to make all projected future benefit payments of current pension plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

(x) *Sensitivity of the Net Pension Liability to the Discount Rate Assumption*

The following represents the current-period net pension liability of the Authority's proportionate share of the net pension liability calculated using the current-period discount rate assumption of 7.0%, as well as what the net pension liability would be if it were calculated using a discount rate that is 1-percentage-point lower (6.0%) or 1-percentage-point higher (8.0%) than the current assumption:

	<u>1% Decrease (6.0%)</u>	<u>Current assumption (7.0%)</u>	<u>1% Increase (8.0%)</u>
Authority's proportionate share of the net pension liability (asset)	\$ 2.3 million	0.3 million	(1.4) million

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**(b) Deferred Compensation and Savings Plans**

The Authority offers certain full-time employees participation in a VDC, which is an alternative to the State's defined benefit retirement system. The VDC option is available to all unrepresented State, New York City, and local public employees who are hired on or after July 1, 2013 and are paid at a rate of \$75,000 or more on an annual basis. For those employees choosing this option, the Authority is required to contribute 8% of their gross salary and the employee contributes between 3% and 6% depending on salary.

**(c) Deferred Savings Plans**

The Authority also offers employees a deferred compensation plan created in accordance with the Internal Revenue Code, Section 457. This plan permits participants to defer a portion of their salaries until future years. Amounts deferred under the plan are not available to employees or beneficiaries until termination, retirement, death or an unforeseeable emergency. An independent trustee is also responsible for the administration of this plan.

**(d) Other Post-employment Benefits**

*(i) Plan Description*

The Authority is a participating employer in the New York State Health Insurance Program (NYSHIP), which is an agent multiple-employer plan administered by the New York State Department of Civil Service. Through NYSHIP, the Authority provides certain health care for eligible retired employees and their dependents. Article XI of the New York State Civil Service Law assigns the authority to NYSHIP to establish and amend the benefit provisions of the plans and to establish maximum obligations of the plan members to contribute to the plan. The Authority's Board is authorized to establish the contribution rates of its employees and retirees below those set by Civil Service Law. Participation in the NYSHIP program provides for employees and/or their dependents to continue eligibility for these benefits in retirement if the employee had at least one year of full-time service with the Authority, and satisfied the requirements for retiring as a member of the Retirement System or is enrolled in the VDC. Eligible retirees contribute 10% of the cost of single coverage and 25% of the cost of dependent coverage for health insurance benefits. Each employee may accumulate up to 1,500 hours of unused sick time and apply the value of this to fund their required contribution. NYSHIP does not issue a stand-alone financial report and NYSHIP's agent activities are included within the financial statements of the State.

The following employees were covered by the benefit terms (amounts not in thousands):

Inactive employees or beneficiaries currently receiving benefit payments	62
Active employees	38
	100

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During 2017, the Authority's Board approved the creation of a legally separate Section 115 trust to accumulate resources for its OPEB obligation to eligible Authority employees and retirees. Contributions to the OPEB Trust are based on an actuarial valuation. The Authority contributed approximately \$2 million and \$19 million to the OPEB Trust during 2018 and 2017, respectively.

Also, during 2017, the Authority implemented GASB Statement No. 75, which refines reporting guidance established under GASB Statement No. 45. GASB Statement No. 75 concluded that OPEBs are a form of employee compensation and should be recognized in the same period in which the compensated service is provided by the employees. OPEB includes post-employment healthcare benefits (including medical, dental, vision, hearing and other health-related benefits) and other forms of post-employment benefits (including life insurance, disability and long-term care).

The Authority used the following facts, actuarial methods and assumptions in determination of the net OPEB liability. Actuarial valuations involve estimates of the value of reported amounts and assumptions about the probability of events in the future. Examples include assumptions about employment mortality and the healthcare cost trend. Amounts determined regarding the annual OPEB expense are subject to continual revision as actual results are compared to past expectations and new estimates are made about the future.

*ii. Net OPEB Liability*

The Authority's net OPEB liability was measured as of January 1, 2017, projected to a measurement date of December 31, 2018, and the total OPEB liability used to calculate the net OPEB liability was determined by an actuarial valuation as of that date.

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The following table shows the components of the Authority's changes in its total OPEB liability, the OPEB Trust fiduciary net position, and the net OPEB liability during the measurement period ending December 31, 2018 and 2017:

	2018			2017		
	Total OPEB Liability	Plan Fiduciary Net Position	Net OPEB Liability	Total OPEB Liability	Plan Fiduciary Net Position	Net OPEB Liability
Balances at beginning of year	\$ 19,854	18,651	1,203	25,343	—	25,343
Service cost	743	—	743	1,152	—	1,152
Interest cost	1,191	—	1,191	969	—	969
Benefit changes	—	—	—	—	—	—
Differences between expected and actual experience	—	—	—	—	—	—
Changes in assumptions	—	—	—	(7,067)	—	(7,067)
Employer contributions	—	1,845	(1,845)	—	19,071	(19,071)
Net investment income	—	(979)	979	—	123	(123)
Benefit payments	(732)	(732)	—	(543)	(543)	—
Administrative expense	—	—	—	—	—	—
Net changes	1,202	134	1,068	(5,489)	18,651	(24,140)
Balances at end of year	\$ 21,056	18,785	2,271	19,854	18,651	1,203

During the measurement year, the net OPEB liability increased approximately \$1 million due to the loss on investments. Projections of benefits for financial reporting purposes are based on the substantive plan (the plan as understood by the employer and plan members) and include the types of benefits provided at the time of each valuation. In developing the projection of cash flows used to determine the discount rate, the employer contributions will continue to follow the contribution policy. The total Authority contribution rate is the sum of the normal cost rate plus an amortization of the plan's unfunded actuarial liability plus a provision for expenses. The normal cost rate is determined under the entry age actuarial cost method while the unfunded actuarial liability rate is that necessary to pay down the unfunded actuarial liability over an open one-year level percent of pay. The January 1, 2017 liability was rolled forward using update procedures from standard actuarial principles to December 31, 2017.

There were no changes in the benefits during 2018 and 2017. There was a discount rate change between December 31, 2016 and December 31, 2017 from 3.5% to 6.0% due to the OPEB Trust funding policy adopted during 2017. This created an assumption gain of \$7 million, which will be amortized over the average expected remaining life of all active and inactive members of the plan.

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Based on these assumptions, the fiduciary net position was projected to be available to make all projected future benefit payments for current members. Consequently, the single equivalent rate used to determine the total OPEB liability as of December 31, 2018 and 2017 is 6.0%, the long-term expected rate of return on OPEB Trust assets.

*(iii) Actuarial assumptions*

Measurement date:	December 31, 2018
Actuarial valuation date:	January 1, 2017
Actuarial cost method:	Entry Age Normal Cost Method
Asset valuation method:	Market Value
Amortization method:	20-Year Closed Amortization, level percentage of payroll
Discount rate:	6.00 %
Salary increases:	3.50 %
Mortality:	Mortality: RP 2014 Standard Table, projected Fully Generational using scale MP-2014

The actuarial assumptions used in the December 31, 2017 valuation and the rollforward to December 31, 2018, were based on results of an actuarial experience study for the period from April 1, 2010 through March 31, 2015.

*(iv) Discount Rate*

The discount rate used to calculate the total OPEB liability was 6.0%, the long-term rate of return on the OPEB Trust assets. The discount rate was based on a long-term assumption comprised of 65% equity investments and 35% fixed income investments. Changes in the discount rate affect the measurement of the total OPEB liability. Lower discount rates produce a higher liability; and higher discount rates produce a lower liability. The table below shows the sensitivity of the total OPEB liability to the discount rate.

	<b>1% Decrease (5.0%)</b>	<b>Current assumption (6.0%)</b>	<b>1% Increase (7.0%)</b>
Total OPEB liability	\$ 23,956	21,056	18,677
Plan fiduciary net position	<u>18,785</u>	<u>18,785</u>	<u>18,785</u>
Net OPEB liability	<u>\$ 5,171</u>	<u>2,271</u>	<u>(108)</u>
Plan fiduciary net position as a percentage of the total OPEB liability	78.4%	89.2%	100.6%

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(v) *Sensitivity of the Net OPEB Liability to the changes in Healthcare Cost Trend Rates*

Changes in the healthcare trends affect the measurement of the total OPEB liability. The table below shows the sensitivity of the net OPEB liability to the changes in the healthcare trends.

	<u>1% Decrease</u>	<u>Healthcare Trend</u>	<u>1% Increase</u>
Total OPEB liability	\$ 18,228	21,056	24,534
Plan fiduciary net position	<u>18,785</u>	<u>18,785</u>	<u>18,785</u>
Net OPEB liability	<u>\$ (557)</u>	<u>2,271</u>	<u>5,749</u>
Plan fiduciary net position as a percentage of the total OPEB liability	103.1%	89.2%	76.6%

The non-Medicare medical trend assumption begins at 6.25% and decreases to a 4.50% long-term trend rate after eight years. The Medicare medical trend assumption begins at 5.20% and decreases to a 4.50% long-term trend rate after eight years. The drug trend assumption begins at 9.50% and decreases to a 4.50% long-term trend rate after eight years. The Medicare Part B trend assumption begins at 5.20% and decreases to a 4.50% long-term trend rate after eight years.

**(15) Commitments and Contingencies**

**(a) Power Purchase Agreements**

*Amended and Restated Power Supply Agreement*

The A&R PSA, which became effective on May 28, 2013, is the successor agreement to the original PSA between National Grid and the Authority. The A&R PSA provides for the sale to the Authority by National Grid of all the capacity, energy and, ancillary services from the oil and gas fired generating plants on Long Island formerly owned by LILCO. Sales are at cost, based on wholesale rates regulated by the Federal Energy Regulatory Commission (FERC). The rates may be modified in accordance with the terms of the A&R PSA for: (i) agreed upon labor and expense indices applied to the base year; (ii) a return of and return on net capital additions, which require approval by the Authority; and (iii) certain reasonably incurred expenses that are outside of the control of National Grid. The annual capacity charge in 2018 and 2017 was approximately \$443 million and \$450 million, respectively. The variable charge under both the PSA and A&R PSA is constant at \$0.90 per megawatt hour of electric energy generated by the plants.

The A&R PSA has provisions for penalties in the event that annual guarantees for heat rate and unforced capacity are not met. No penalties were assessed in either 2018 or 2017.

The capacity charge of the A&R PSA is adjusted each year for the actuarially required contributions for the pension and OPEB (P&OPEB) benefits of the employees that work at these National Grid power

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plants. The actuarially required contributions are reflected in annual filings by National Grid with FERC. As of the most recent estimate provided by National Grid's actuary dated March 2018, the P&OPEB obligations are underfunded by approximately \$28 million. This underfunding is a component in the development of the actuarially required contributions in each year. The Authority does not expect to have a material liability for P&OPEB obligations under the A&R PSA upon termination of the contract.

The A&R PSA does not meet the criteria for capitalization and is accounted for as an operating lease.

*Other Power Purchase and Transmission Agreements*

The Authority has entered into power purchase agreements (PPAs) with several private companies to develop and operate generating units at sites throughout Long Island. Generally, the PPAs provide for the Authority to purchase 100% of the capacity (and associated energy and ancillary services as needed), for the term of each contract, which vary in duration for up to 30 years from commercial operation date. Additionally, the Authority has entered into PPAs with several private companies for capacity and/or energy from facilities via undersea cables under long-term firm transmission capacity purchase agreements. The Authority also has several agreements to purchase renewable energy from on and off Long Island sources.

Certain of these facilities have been accounted for as capital lease obligations on the Statements of Net Position and those facilities that do not meet the criteria for capitalization are being accounted for as operating leases.

*Battery Storage Projects*

During 2017, the Authority entered into two 20-year contracts for 5 megawatt storage batteries, which are expected to store energy for use primarily to meet daily and seasonal peak loads on the South Fork of Long Island. One contract became commercially operational in December 2018 and met the criteria for capitalization and is accounted for as a capital lease.

The other contract became commercially operational in February 2019 and is included in the table below as a capital lease commitment.

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The following table presents the approximate minimum obligations for the power purchase agreement commitments discussed above:

	<u>Capital leases</u>	<u>Operating leases</u>
Minimum lease payments:		
2019	\$ 261,690	618,133
2020	256,449	621,919
2021	247,902	563,295
2022	249,140	549,275
2023	250,417	555,914
2024 through 2028	955,731	1,814,429
2029 through 2033	220,208	124,829
2034 through 2038	23,962	37,470
2039 through 2042	—	23,970
Total	<u>\$ 2,465,499</u>	<u>4,909,234</u>

As provided by the Authority's tariff, the cost of all the facilities noted above are includable and recoverable through the Power Supply Charge.

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*Deepwater Wind Project*

During 2017, the Authority's Board approved a 20-year power purchase agreement for a 90 megawatt offshore wind farm to be installed off the coast of Long Island that is expected to be commercially operational by 2022. During 2018, the Authority's Board approved an amendment to the offshore wind farm contract to provide for 40 megawatts of additional capacity.

The Authority will only pay for energy when delivered without taking construction risk and has no financial commitment until the wind farm is commercially operational.

**(b) Other Leasing Agreements**

PSEG Long Island, as the Authority's agent, has entered into long-term leases for financing the purchase of certain fleet vehicles. Such leases are classified as capital leases for accounting purposes and are recorded at the present value of the future minimum lease payments at the inception of the lease.

PSEG Long Island also entered into several operating leases for office space with expiration terms ranging from 2023 to 2028. The Authority has an office operating lease which expires April 30, 2024.

The following table presents the approximate minimum obligations for the vehicle and office leasing obligations:

	<u>Vehicle Leases</u>	<u>Office Leases</u>
Minimum lease payments:		
2019	\$ 5,261	12,592
2020	4,543	12,207
2021	3,698	11,785
2022	2,678	11,343
2023	1,976	10,856
2024 through 2028	<u>2,823</u>	<u>31,269</u>
Total	<u>\$ 20,979</u>	<u>90,052</u>

**(c) Insurance Programs**

The Authority's insurance program is comprised of a combination of policies, from major insurance companies, self-insurance, and contractual transfer of liability, including naming the Authority as an additional named insured and indemnification.

The Authority has purchased Workers' Compensation insurance from the New York State Insurance Fund to provide coverage for claims arising from employee accidents or injuries. In addition, the Authority carries Employment Practices Liability Insurance from a major insurance company and the Authority's office property and liability coverage is administered by the New York State Office of General Services Bureau of Risk & Insurance Management through a master policy the State procures

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for various State entities, including the Authority. Liability related to construction projects and similar risks is transferred through contractual indemnification and compliance with Authority insurance requirements. The Authority also has insurance coverage on its interest in NMP2 as disclosed in note 10.

The Authority has commercially available excess general liability, property and cyber insurance for claims above its self-insurance provisions. For general liability, including automobile liability, the Authority is self-insured up to \$3.0 million per occurrence. For property damage and extra expense combined, the Authority is self-insured up to \$1.5 million per occurrence. For property damage or loss due to a named windstorm and flood, 2% of the value at risk is self-insured per occurrence with a minimum of \$1.5 million and up to a maximum self-insured level of \$7.5 million. For cyber related events, including an event relating to the Authority's information technology system, the Authority is self-insured for up to \$10,000 per event. Similarly, the Authority's Service Provider also maintains cyber insurance covering events related to information technology and operating systems where the Authority is an additional named insured.

The Authority has no general property insurance for damage to its poles and wires and is self-insured.

**(16) Legal Proceedings**

**(a) PSEG Long Island**

In accordance with the OSA, other than for loss and expense attributable to PSEG Long Island's gross negligence or willful misconduct for which there is no limitation on PSEG Long Island's liability, PSEG Long Island's liability for third-party claims in performing its obligations to operate and maintain the Authority's T&D system is generally limited to the aggregate loss and expense between \$2.5 million and \$5 million in any contract year. PSEG Long Island is not responsible for any liabilities that occurred prior to January 1, 2014.

**LONG ISLAND POWER AUTHORITY**  
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**(b) Superstorm Sandy**

Four purported class action suits were filed against the Authority and National Grid related to Superstorm Sandy that contain common allegations of wrongdoing and/or gross negligence relating to the Authority's and National Grid's preparedness for, and response to the storm. These actions seek monetary damages, fees and other relief. Twelve more individual actions have been filed on behalf of the owners of approximately 100 properties in the Breezy Point, Belle Harbor and Rockaway Park neighborhoods of the Rockaway Peninsula, in the Queens portion of the Service Area. These suits allege generally that the failure to de-energize the electrical system in the Rockaways in advance of the tidal surges experienced during the storm resulted in fires that caused various types of property damage, ranging from all or partial loss of plaintiffs' customers' homes. In February 2018, the Court of Appeals, New York State's highest court, affirmed lower court rulings that the Authority is not entitled at this point to dismissal of the fire cases. In June 2018, the court in the class action litigation granted plaintiffs' motion to certify a class consisting of residential customers who lost power for more than three days and who did not require an electrical inspection before service could be restored. The Authority has appealed that ruling. The class action cases and the fire cases are being defended, and although the amounts sought in damages are material, the outcome of these matters cannot be predicted with certainty at this time. The Authority does not believe that they will have a material impact on the operating results or financial condition of the Authority.

**(c) Environmental**

National Grid and the Authority are parties to Liabilities Undertaking and Indemnification Agreements which, when taken together, provide, generally, that environmental liabilities will be divided between National Grid and the Authority on the basis of whether they relate to assets transferred to National Grid or retained by the Authority as part of the 1998 LIPA/LILCO Merger (Merger). In addition, to clarify and supplement these agreements, National Grid and the Authority also entered into an agreement to allocate between them certain liabilities, including environmental liabilities, arising from events occurring prior to the Merger and relating to the business and operations to be conducted by the Authority after the Merger (the Retained Business) and to the business and operations to be conducted by National Grid after the Merger (the Transferred Business).

National Grid is responsible for all liabilities arising from all manufactured gas plant operations on Long Island (MGP Sites), including those currently or formerly operated by National Grid or any of its predecessors, whether or not such MGP Sites were related to the Transferred Business or the Retained Business. In addition, National Grid is responsible for all environmental liabilities traceable to the Transferred Business and certain scheduled environmental liabilities. Environmental liabilities that arise from the non-nuclear generating business (a Transferred Business) may be recoverable by National Grid as part of the capacity charge under the A&R PSA. The Authority is responsible for all environmental liabilities traceable to the Retained Business and certain scheduled environmental liabilities.

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Environmental liabilities, other than those related to MGP sites that existed as of the date of the Merger that are untraceable, including untraceable liabilities that arise out of common and/or shared services, have been allocated to the Authority and National Grid, as provided for in the Merger.

The A&R PSA addresses the terms by which the Authority will continue to purchase electricity from certain National Grid facilities. Generally, National Grid's liabilities under this contract are limited to losses due to gross negligence or willful misconduct or violations of environmental laws not consistent with prudent utility practices.

**(d) Environmental Matters Retained by the Authority**

*Superfund Sites* – Under Section 107(a) of the federal Comprehensive Environmental Response, Compensation and Liability Act (CERCLA, also commonly referred to as Superfund), parties that generated or arranged for disposal of hazardous substances are liable for costs incurred by the Environmental Protection Agency (EPA) or others that are responding to a release or threat of release of hazardous substances.

*Metal Bank* – Cottman Avenue is a National Priorities List site with PCB contamination on the Delaware River in Philadelphia, Pennsylvania. EPA sued a number of potentially responsible parties (PRPs) and subsequently settled with all defendants, among them a number of utility companies – including LILCO – alleged to have sent used transformers to the site during the 1960s and 1970s. The remediation has been completed and monitoring at the site continues. The Authority's contribution toward the settlement and monitoring costs has not been material. One feature of the long-term remedy began to fail within two years of construction, and EPA required the PRP group to repair it. The repair costs were not material to the Authority. In December 2016, the PRP group filed suit against the remedial design consultant that designed the remedy and approved changes to its design during construction. The results of the litigation and any recovery that may be secured by the PRP Group are uncertain.

The U.S. Department of Interior, the National Oceanic and Atmospheric Administration and the Pennsylvania Fish and Boat Commission and Departments of Environmental Protection and Conservation and Natural Resources notified the PRP group that they have claims for damages to natural resources allegedly impacted by releases of hazardous substances to and from the Cottman site. While disputing the liability, the PRP group engaged in settlement discussions with these agencies and, at the end of 2018, reached a tentative agreement to resolve their claims. The Authority believes that the potential settlement would not have a material impact on the operating results or financial condition of the Authority.

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**(e) Asbestos Proceedings**

Litigation is pending in New York State Court against the Authority, LILCO, National Grid and various other defendants, involving thousands of plaintiffs seeking damages for personal injuries or wrongful death allegedly caused by exposure to asbestos. The cases for which the Authority may have financial responsibility involve employees of various contractors and subcontractors engaged in the construction or renovation of certain power plants formerly owned by LILCO. These cases include extraordinarily large damage claims, which have historically proven to be excessive. The actual aggregate amount paid to plaintiffs alleging exposure to asbestos at these power plants over the years has not been material to the Authority. Due to the nature of how these cases are litigated, it is difficult to determine how many of the remaining cases that have been filed (or of those that will be filed in the future) involve plaintiffs who were exposed to asbestos at any of these power plants. Based upon experience, it does not appear that currently pending or future claims involving plaintiffs who allege exposure to asbestos at any of these power plants will have a material impact on the operating results or financial condition of the Authority.

**(17) Component Unit Condensed Consolidating Statements**

UDSA is a component unit of the Authority and all of the activities and balances of the UDSA are blended into and reported as part of the Authority. The condensed combining information for December 31, 2018 and 2017 are below:

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**Consolidating Condensed Statement of Net Position  
December 31, 2018**

	<u>Authority</u>	<u>UDSA</u>	<u>Eliminations</u>	<u>Consolidated</u>
Assets and deferred outflows of resources:				
Current assets	\$ 2,077,975	173,837	(42)	2,251,770
Utility plant and property and equipment, net	8,383,338	—	—	8,383,338
Noncurrent assets	2,153,715	4,523,469	(4,501,288)	2,175,896
Deferred outflows of resources	247,313	—	—	247,313
Total assets and deferred outflows of resources	<u>12,862,341</u>	<u>4,697,306</u>	<u>(4,501,330)</u>	<u>13,058,317</u>
Liabilities, deferred inflows of resources and net position:				
Current liabilities	1,002,184	139,500	(42)	1,141,642
Long-term debt	3,775,406	4,457,610	—	8,233,016
Noncurrent liabilities	7,170,051	—	(4,501,288)	2,668,763
Deferred inflows of resources	520,046	—	—	520,046
Net position	394,654	100,196	—	494,850
Total liabilities, deferred inflows of resources and net position	<u>\$ 12,862,341</u>	<u>4,697,306</u>	<u>(4,501,330)</u>	<u>13,058,317</u>

**Consolidating Condensed Statement of Revenues, Expenses and Changes in Net Position  
For the year ended December 31, 2018**

	<u>Authority</u>	<u>UDSA</u>	<u>Eliminations</u>	<u>Consolidated</u>
Operating revenues	\$ 3,239,952	339,072	(2,750)	3,576,274
Operating expenses	3,127,954	176,101	(2,750)	3,301,305
Operating income	111,998	162,971	—	274,969
Nonoperating revenue and expenses	97,124	2,952	—	100,076
Interest charges and (credits):				
Interest on long-term debt	160,788	200,495	—	361,283
Other interest and amortizations	34,434	(43,334)	—	(8,900)
Total interest charges and (credits)	195,222	157,161	—	352,383
Change in net position	13,900	8,762	—	22,662
Beginning net position	380,754	91,434	—	472,188
Ending net position	<u>\$ 394,654</u>	<u>100,196</u>	<u>—</u>	<u>494,850</u>

**Consolidating Condensed Statement of Cash Flows  
For the year ended December 31, 2018**

	<u>Authority</u>	<u>UDSA</u>	<u>Eliminations</u>	<u>Consolidated</u>
Net cash provided by operating activities	\$ 404,087	337,491	—	741,578
Net cash provided by investing activities	(47,741)	2,952	—	(44,789)
Net cash used in noncapital related activities	(87,362)	—	—	(87,362)
Net cash used in capital and related financing activities	(382,086)	(325,013)	—	(707,099)
Net (decrease) increase in cash and cash equivalents	(113,102)	15,430	—	(97,672)
Cash and cash equivalents at beginning of year	316,305	109,167	—	425,472
Cash and cash equivalents at end of year	<u>\$ 203,203</u>	<u>124,597</u>	<u>—</u>	<u>327,800</u>

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**Consolidating Condensed Statement of Net Position  
December 31, 2017**

	<u>Authority</u>	<u>UDSA</u>	<u>Eliminations</u>	<u>Consolidated</u>
Assets and deferred outflows of resources:				
Current assets	\$ 1,954,435	162,360	(2,513)	2,114,282
Utility plant and property and equipment, net	8,088,014	—	—	8,088,014
Noncurrent assets	2,655,736	4,696,155	(4,671,456)	2,680,435
Deferred outflows of resources	275,026	—	—	275,026
Total assets and deferred outflows of resources	<u>12,973,211</u>	<u>4,858,515</u>	<u>(4,673,969)</u>	<u>13,157,757</u>
Liabilities, deferred inflows of resources and net position:				
Current liabilities	1,150,978	132,573	(2,513)	1,281,038
Long-term debt	3,344,223	4,634,508	—	7,978,731
Noncurrent liabilities	7,556,300	—	(4,671,456)	2,884,844
Deferred inflows of resources	540,956	—	—	540,956
Net position	380,754	91,434	—	472,188
Total liabilities, deferred inflows of resources and net position	<u>\$ 12,973,211</u>	<u>4,858,515</u>	<u>(4,673,969)</u>	<u>13,157,757</u>

**Consolidating Condensed Statement of Revenues, Expenses and Changes in Net Position  
For the year ended December 31, 2017**

	<u>Authority</u>	<u>UDSA</u>	<u>Eliminations</u>	<u>Consolidated</u>
Operating revenues	\$ 3,186,447	297,679	(2,513)	3,481,613
Operating expenses	3,094,432	122,198	(2,513)	3,214,117
Operating income	92,015	175,481	—	267,496
Nonoperating revenue and expenses	84,708	989	—	85,697
Interest charges and (credits):				
Interest on long-term debt	155,389	187,163	—	342,552
Other interest and amortizations	34,471	(40,952)	—	(6,481)
Total interest charges and (credits)	189,860	146,211	—	336,071
Change in net position	(13,137)	30,259	—	17,122
Beginning net position	393,891	61,175	—	455,066
Ending net position	<u>\$ 380,754</u>	<u>91,434</u>	<u>—</u>	<u>472,188</u>

**Consolidating Condensed Statement of Cash Flows  
For the year ended December 31, 2017**

	<u>Authority</u>	<u>UDSA</u>	<u>Eliminations</u>	<u>Consolidated</u>
Net cash provided by operating activities	\$ 415,070	276,849	—	691,919
Net cash provided by investing activities	10,336	—	—	10,336
Net cash used in noncapital related activities	(15,511)	—	—	(15,511)
Net cash used in capital and related financing activities	(567,174)	(256,254)	—	(823,428)
Net (decrease) increase in cash and cash equivalents	(157,279)	20,595	—	(136,684)
Cash and cash equivalents at beginning of year	473,584	88,572	—	562,156
Cash and cash equivalents at end of year	<u>\$ 316,305</u>	<u>109,167</u>	<u>—</u>	<u>425,472</u>

**LONG ISLAND POWER AUTHORITY**  
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**(18) Subsequent Events**

The Authority's revolving credit facility agreement will expire on March 22, 2019. The Authority's Board has approved the renewal of the agreement with a new authorization limit of \$200 million. The Authority expects to receive the statutorily required approvals prior to the expiration of this agreement.

**LONG ISLAND POWER AUTHORITY**  
**Required Supplementary Information**

SCHEDULE OF THE AUTHORITY'S PROPORTIONATE SHARE OF THE NET PENSION LIABILITY

NYSLRS Pension Plan  
Last 10 Fiscal Years\*

	<u>2018</u>	<u>2017</u>	<u>2016</u>	<u>2015</u>	<u>2014</u>
The Authority's proportion of the net pension liability	0.0096075%	0.0099883%	0.0106679%	0.0280362%	0.0280362%
The Authority's proportionate share of the net pension liability	\$ 310,076	\$ 938,526	\$ 1,712,234	\$ 947,131	\$ 1,266,916
The Authority's covered-employee payroll	\$ 3,903,750	\$ 4,019,750	\$ 4,138,358	\$ 4,787,173	\$ 5,472,436
The Authority's proportionate share of the net pension liability as a percentage of its covered-employee payroll	7.94%	23.35%	41.37%	19.78%	23.15%
Plan fiduciary net position as a percentage of the total pension liability	98.24%	94.70%	90.70%	97.95%	97.20%

\*The amounts presented for each fiscal year were determined as of the measurement date of the plans

*This schedule is presented to illustrate the requirement to show information for 10 years. However, until a full 10-year trend is compiled, the Authority has presented information for those years for which information is available.*

**LONG ISLAND POWER AUTHORITY**  
**Required Supplementary Information**

SCHEDULE OF CHANGES IN THE AUTHORITY'S NET OPEB LIABILITY AND RELATED RATIOS

(Amounts in thousands)

	2018	2017
<b>Total OPEB liability</b>		
Service cost	\$ 743	1,152
Interest	1,191	969
Change of benefit terms	—	—
Differences between expected and actual experience	—	—
Change of assumptions	—	(7,067)
Benefit payments	(732)	(543)
Net change in total OPEB liability	1,202	(5,489)
Total OPEB liability-beginning	19,854	25,343
Total OPEB liability-ending	\$ 21,056	19,854
 <b>Plan fiduciary net position</b>		
Contributions - employer	1,845	19,071
Contributions - member	—	—
Net investment income	(979)	123
Benefit payments	(732)	(543)
Administrative expense	—	—
Net change in plan fiduciary net position	134	18,651
Plan fiduciary net position - beginning	18,651	—
Plan fiduciary net position - ending	\$ 18,785	18,651
 Net OPEB liability - ending	\$ 2,271	1,203
 Plan fiduciary net position as a percentage of the total OPEB liability	89.21%	93.94%
Covered-employee payroll	\$ 5,465	5,306
 Total OPEB liability as a percentage of covered-employee payroll	41.56%	22.67%

*Notes to Schedule:*

Discount rate assumed is 6.00%

*This schedule is presented to illustrate the requirement to show information for 10 years. However, until a full 10-year trend is compiled, the Authority has presented information for those years for which information is available.*

**LONG ISLAND POWER AUTHORITY**  
**Required Supplementary Information**

SCHEDULE OF ACTUARIALLY DETERMINED CONTRIBUTIONS AND BENEFIT PAYMENTS

*(Amounts in thousands)*

	2018	2017
Actuarially determined contribution (ADC)	\$ 821	19,071
Actual Contribution related to ADC	1,845	19,071
Covered-employee payroll	5,465	5,306
Actuarially determined contribution as a percentage of covered-employee payroll	33.76%	359.42%
Benefit payments	\$ 732	543

*Notes to Schedule:*

Actuarial Cost Method:	Entry Age Normal Cost Method
Asset Valuation Method:	Market Value
Amortization Method:	20 - Year Closed Amortization, level percentage of payroll
Discount Rate:	6.00 %
Salary Increases:	3.50 %
Mortality:	Mortality: RP 2014 Standard Table, projected fully generational using scale MP-2014

*This schedule is presented to illustrate the requirement to show information for 10 years. However, until a full 10-year trend is compiled, the Authority has presented information for those years for which information is available.*



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## **Independent Auditors' Report on Internal Control Over Financial Reporting and on Compliance and Other Matters Based on an Audit of Financial Statements Performed in Accordance With *Government Auditing Standards***

The Board of Trustees  
Long Island Power Authority:

We have audited, in accordance with the auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards* issued by the Comptroller General of the United States, the consolidated financial statements of the business-type activities and fiduciary funds of the Long Island Power Authority (the Authority) and its blended component unit, collectively component units of the State of New York, as of and for the years ended December 31, 2018 and 2017, and the related notes to the consolidated financial statements, which collectively comprise the Authority's consolidated financial statements as listed in the table of content, and have issued our report thereon dated March 20, 2019.

### **Internal Control Over Financial Reporting**

In planning and performing our audit of the consolidated financial statements as of and for the year ended December 31, 2018, we considered the Authority's internal control over financial reporting (internal control) to determine the audit procedures that are appropriate in the circumstances for the purpose of expressing our opinions on the consolidated financial statements, but not for the purpose of expressing an opinion on the effectiveness of the Authority's internal control. Accordingly, we do not express an opinion on the effectiveness of the Authority's internal control.

A deficiency in internal control exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, misstatements on a timely basis. A material weakness is a deficiency, or a combination of deficiencies, in internal control, such that there is a reasonable possibility that a material misstatement of the entity's financial statements will not be prevented, or detected and corrected, on a timely basis. A significant deficiency is a deficiency, or a combination of deficiencies, in internal control that is less severe than a material weakness yet important enough to merit attention by those charged with governance.

Our consideration of internal control was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control that might be material weaknesses or significant deficiencies. Given these limitations, during our audit we did not identify any deficiencies in internal control that we consider to be material weaknesses. However, material weaknesses may exist that have not been identified.

### **Compliance and Other Matters**

As part of obtaining reasonable assurance about whether the Authority's consolidated financial statements are free from material misstatement, we performed tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements, noncompliance with which could have a direct and material effect on the determination of consolidated financial statement amounts. However, providing an opinion on compliance with those provisions was not an objective of our audit, and accordingly, we do not express such an opinion. The results of our tests disclosed no instances of noncompliance or other matters that are required to be reported under *Government Auditing Standards*.



### **Purpose of this Report**

The purpose of this report is solely to describe the scope of our testing of internal control and compliance and the results of that testing, and not to provide an opinion on the effectiveness of the Authority's internal control or on compliance. This report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the Authority's internal control and compliance. Accordingly, this communication is not suitable for any other purpose.

**KPMG LLP**

New York, New York  
March 20, 2019

## APPENDIX B

### Glossary of Certain Defined Terms

The following terms, as generally used in offering documents of the Authority, have the respective meanings provided below. These summary definitions do not purport to be complete or definitive and are qualified in their entirety by reference to the Resolution, the Financing Agreement, the OSA and the PSA, copies of which have been filed with EMMA and are on file with the Trustee.

**“Administrative Services Agreement”** means the Administrative Services Agreement, dated as of May 1, 1998, between the Authority and LIPA, as the same may be amended and supplemented.

**“Authorized Representative”** means in the case of the Authority and LIPA, their respective Chairman, Chief Executive Officer, Executive Director, Chief Financial Officer, Controller or Chief Operating Officer, or such other person or persons so designated by resolution of the Authority or LIPA, as the case may be.

**“Business Day”** means any day other than a Saturday, Sunday or legal holiday.

**“Certificate”** means (i) a signed document attesting to or acknowledging the matters therein stated or setting forth matters to be determined pursuant to the Resolution or otherwise, (ii) the report of an Accountant as to an audit or compliance called for by the Resolution, or (iii) any report of the Consulting Engineer or Rate Consultant as to any matter called for by the Resolution or the Financing Agreement.

**“Change in Regulatory Law”** has the meaning set forth in the OSA.

**“Change of Control”** has the meaning set forth in the OSA.

**“Construction Fund”** means the fund by that name established pursuant to the Resolution.

**“Consulting Engineer”** means, when such term is used in the Resolution and the Financing Agreement, any independent engineer or firm of engineers of recognized standing selected by the Authority and may include an independent engineer or firm of engineers of recognized standing selected by the Authority or LIPA in one or more other capacities.

**“Debt Service”** for any Fiscal Year or part thereof means, as of any date of calculation, the sum of (i) with respect to any Outstanding Bonds, an amount equal to the sum of (a) interest payable during such Fiscal Year or part thereof on such Bonds, except to the extent that such interest is to be paid from amounts representing Capitalized Interest and (b) the Principal Installments of such Bonds payable during such Fiscal Year or part thereof and (ii) with respect to a Parity Reimbursement Obligation, an amount equal to the sum of (a) interest payable during such Fiscal Year or part thereof on such Parity Reimbursement Obligation and (b) the Principal Installments of such Parity Reimbursement Obligation payable during such Fiscal Year or part thereof. Such interest and Principal Installments shall be calculated on the assumption that (x) no such Bonds, or Parity Reimbursement Obligations Outstanding at the date of calculation will cease to be Outstanding except by reason of the payment thereof upon stated maturity or upon mandatory redemption by application of Sinking Fund Installments and (y) variable rate Bonds will bear interest at the greater of (A) the rate or rates which were assumed by LIPA in the Authority Budget for such Fiscal Year to be borne by Variable Rate Bonds during such Fiscal Year or (B) the average rate or rates borne on variable rate Bonds Outstanding during the twelve calendar months preceding the date of calculation, but at a rate not less than the rate or rates borne thereon as of such date of calculation; provided, however, that if LIPA has in connection with any variable rate Bonds entered into a Financial Contract which provides that the Authority is to pay to the Qualified Counterparty an amount determined based upon a fixed rate of interest on the Outstanding principal amount of such variable rate Bonds or that the Qualified Counterparty is to pay to the Authority an amount determined based upon the amount by which the rate at which such variable rate Bonds bear interest exceeds a stated rate of interest on all or any portion of such variable rate Bonds, it will be assumed that such variable rate Bond bears interest at the fixed rate of interest to

be paid by the Authority or the rate in excess of which the Qualified Counterparty is to make payment to the Authority in accordance with such agreement.

**“Debt Service Fund”** means the fund by that name established pursuant to the Resolution.

**“Event of Default”** means, (i) when such term is used in the Resolution and the Financing Agreement, any event specified in the Resolution as an “Event of Default” (and as summarized in the summary thereof under the caption “Event of Default; Remedies Upon Default”) and (ii) when such term is used in the OSA or the PSA, such events as defined in the OSA or the PSA.

**“FERC”** means the Federal Energy Regulatory Commission.

**“Financing Agreement”** means the Financing Agreement, dated as of May 1, 1998, by and between the Authority and LIPA to provide for their respective duties and obligations relating to the financing and operation of the retail electric business in the Service Area, as the same may be amended or supplemented.

**“Fiscal Year”** means the twelve-month period commencing on January 1 of each year; provided, however, that the Authority and LIPA may, from time to time, mutually agree on a different twelve-month period as the Fiscal Year, in which case January 1, when with reference to Fiscal Year, shall be construed to mean the first day of the first calendar month of such different Fiscal Year.

**“GASB”** means the Governmental Accounting Standards Board.

**“ISO-NE”** means The New England Independent System Operator.

**“LIPA Parties”** means the Authority and LIPA.

**“LIPA Budget”** means the annual budget of LIPA, as amended or supplemented, adopted or in effect for a particular Fiscal Year as provided in the Financing Agreement.

**“LIPA Unsecured Debt Fund”** means the fund by that name established pursuant to the Resolution.

**“Municipalization”** has the meaning set forth in the OSA.

**“National Grid Parties”** means Keyspan Corporation and various National Grid subsidiaries.

**“NYISO”** means the New York Independent System Operator and any successor thereto.

**“Operating Expense Fund”** means the fund by that name established pursuant to the Resolution.

**“Operating Expenses”** means any and all current expenses of maintaining, repairing, operating and managing the System, including but not limited to the costs of supplies, fuel, fuel assemblies and components required for the operation of the System (including but not limited to any payments made under Supply Contracts other than the Debt Service Component thereof); payments relating to fuel or electricity hedging instruments; all payments under any System Agreements; all salaries, administrative, general, commercial, architectural, engineering, advertising, public notices, auditing, billing, collection and enforcement and legal expenses; insurance and surety bond premiums; consultants’ fees and charges; payments to pension, retirement, health and hospitalization funds; any taxes which may lawfully be imposed on the System or the income or operation thereof or of LIPA; costs of public hearings; ordinary and current rentals of equipment or other property; lease payments for real property or interests therein; expenses of maintenance and repair (including replacements); expenses, liabilities and compensation of the Trustee or any other Fiduciary or Depository; to the extent provided by by-law, agreement or other instrument of the Authority or LIPA, indemnification of Fiduciaries, Trustees, officers and employees of the Authority, directors, officers and employees of LIPA, and others and premiums for insurance related thereto; reasonable reserves for operation, maintenance and repair and for self-insurance; and all other expenses necessary, incidental or convenient for the efficient operation of the System; all costs and expenses associated with or arising out of the research, development (including feasibility

and other studies, including but not limited to resource planning and studies and reports relating to demand side management) and/or implementation of any project, facility, system, task or measure related to the System including but not limited to demand side management programs, deemed desirable or necessary by the Authority or LIPA; all other costs and expenses arising out of or in connection with the conduct of LIPA's business or necessary, incidental or convenient for the efficient operation of LIPA; and all expenses necessary, incidental or convenient for the efficient operation of the Authority and the performance of the obligations of the Authority under the Administrative Services Agreement. Notwithstanding the foregoing, Operating Expenses shall not include (i) any costs and expenses attributable to a Separately Financed Project, (ii) any costs or expenses for new construction or for reconstruction other than restoration of any part of the System to the condition of serviceability thereof when new, (iii) the Debt Service Component of any Supply Contract, (iv) to the extent so specified by the Authority, any incentive payments payable by LIPA under any System Agreement, (v) any payments payable by LIPA under any other agreement the terms of which specify that the same shall not constitute an Operating Expense under the Resolution, (vi) any allowance for depreciation, (vii) payment under any Capital Leases, or (viii) any PILOTs.

“**OSA**” means the Amended and Restated Operations Services Agreement, dated as of December 31, 2013, by and between a wholly-owned subsidiary of Public Service Enterprise Group Incorporated (“**PSEG**”) dedicated to the operations of the T&D System (“**PSEG Long Island**”) and LIPA, as amended and supplemented.

“**Outstanding**” when used with reference to Parity Reimbursement Obligations, shall have the meaning given to such term in the agreement creating such Parity Reimbursement Obligations, and, when used with reference to Bonds, means, as of any date, all Bonds theretofore or thereupon being authenticated and delivered under the Resolution except: (a) any Bonds canceled by the Trustee at or prior to such date; (b) any Bonds the principal and Redemption Price, if any, of and interest on which have been paid in accordance with the terms thereof; (c) any Bonds in lieu of or in substitution for which other Bonds have been authenticated and delivered pursuant to the Resolution; and (d) any Bonds deemed to have been paid as provided in the Resolution.

“**Outstanding LIPA Unsecured Debt**” means certain unsecured financial obligations of LIPA outstanding as of the acquisition of LILCO, all of which has been retired as of the date hereof.

“**Parity Contract Obligation**” means the obligation of the Authority or LIPA to pay the Debt Service Component of Supply Contracts and Capital Leases from Revenues and secured by a pledge of and lien on the Trust Estate on a parity with the Bonds.

“**Parity Contract Obligations Fund**” means the fund by that name established pursuant to the Resolution from which amounts shall be applied for the payment of Parity Contract Obligations in accordance with the Resolution.

“**Pass-Through Expenditures**” has the meaning set forth in the OSA.

“**Parity Obligations**” means, collectively, all Parity Contract Obligations and Parity Reimbursement Obligations.

“**Parity Reimbursement Obligation**” shall have the meaning assigned thereto under the heading “Special Provisions Relating to Option Securities, Financial Contracts, Subordinated Credit Facilities, Parity Obligations and Subordinated Indebtedness” in the summary of the Resolution.

“**PILOTs**” means any payment in lieu of taxes due and owing by the Authority or LIPA in accordance with the Act or other applicable law.

“**PILOTs Fund**” means the fund by that name established by the Resolution, and used to make payments to the State or any municipality or other political subdivision of the State, which shall be entitled to receive PILOTs under the Act, subject to the provisions of the Resolution.

“**PJM**” means the Pennsylvania-New Jersey-Maryland Regional Transmission Organization.

“**Power and Energy**” means the electrical energy and capacity available from the System Power Supply.

**“Principal Installment”** means, as of any date of calculation and with respect to any Outstanding Bonds, (i) the principal amount of such Bonds (including (x) any amount designated in, or determined pursuant to, the applicable Supplemental Resolution, as the “principal amount” with respect to any Bonds which do not pay full current interest for all or any part of their term and (y) the principal amount of any Parity Reimbursement Obligation) due on a certain future date for which no Sinking Fund Installments have been established, or (ii) the unsatisfied balance of any Sinking Fund Installments due on a certain future date for such Bonds, or (iii) if such future dates coincide as to different Bonds, the sum of such principal amount of Bonds and of such unsatisfied balance of Sinking Fund Installments due on such future date.

**“Privatization”** has the meaning set forth in the OSA.

**“Property Tax Settlement”** as used in the Resolution, means the Authority’s program of rebates and credits to System customers in respect of the amounts otherwise payable by the Suffolk Taxing Jurisdictions as refunds of taxes and payments in lieu of taxes relating to Shoreham.

**“PSA”** or **“Power Supply Agreement”** means the Amended and Restated Power Supply Agreement that commenced in May 2013, between GENCO and LIPA, as amended and supplemented.

**“Rate Covenant”** means the covenants by the Authority in the Resolution to establish and maintain System fees, rates, rents, charges and surcharges at a level sufficient to achieve Revenues sufficient to pay Debt Service, Operating Expenses and other expenses.

**“Rate Stabilization Fund”** means the fund by that name established by the Resolution, and used for any lawful purpose of the Authority or LIPA, including but not limited to making any deposits required by the Resolution to any Fund or Account, in accordance with the Resolution.

**“Redemption Price”** means, when used with respect to a Bond or portion thereof, the principal amount thereof plus the applicable premium, if any, payable upon either optional or mandatory redemption thereof pursuant to the Resolution.

**“Reimbursement Obligation”** shall have the meaning provided under the heading “Special Provisions Relating to Option Securities, Financial Contracts, Subordinated Credit Facilities, Parity Obligations and Subordinated Indebtedness” in the summary of the Resolution.

**“Required Deposits”** means the amount, if any, payable into the Operating Expense Fund, the Debt Service Fund, the Parity Contract Obligations Fund, the Subordinated Indebtedness Fund, LIPA Unsecured Debt Fund and the PILOTs Fund, but in each case only to the extent such payments are required to be made from Revenues.

**“Retained Assets”** means (i) certain regulatory assets of LILCO, including the Shoreham Regulatory Asset, (ii) the judgments, actions and claims of LILCO for refunds of property taxes, including the judgment resulting from the litigation contesting the assessment of certain Shoreham Nuclear Power Station property and (iii) other intangible assets of LILCO’s former retail electric business, including the right to provide electric service in the Service Area.

**“Revenue Fund”** means the fund into which Revenues are deposited by the Authority or by LIPA, unless required by the Resolution to be deposited to any other Fund or Account, in accordance with the Resolution or the Financing Agreement.

**“Revenues”** means all revenues, rates, fees, charges, surcharges, rents, proceeds from the sale of LIPA Assets, proceeds of insurance, and other income and receipts, as derived in cash, directly or indirectly from any of LIPA’s operations, by or for the account of the Authority or LIPA, including but not limited to (i) all payments received by the Authority or LIPA with respect to the Promissory Notes, (ii) any guaranty of performance under any System Agreement and (iii) all dividends received by the Authority as a result of ownership of any stock or other evidences of an equity interest in LIPA; provided, however, that Revenues shall not include (a) any Transition Charge, (b) any of the foregoing attributable directly or indirectly to the ownership or operation of any Separately Financed Project, or (c) any federal or State grant moneys the receipt of which is conditioned upon their expenditure for a particular

purpose unless the Authority determines that such grant moneys shall constitute Revenues. Notwithstanding the foregoing, Revenues also shall not include any amounts, or amounts from any sources, as may be specified from time to time by a Supplemental Resolution; provided, however that at the time such Supplemental Resolution becomes effective the tests set forth in the Resolution under the heading “**Conditions Precedent to Delivery of Bonds**” in the Resolution shall be satisfied in accordance with the Resolution.

“**Separately Financed Project**” means any such project financed by revenues or other income derived solely from the ownership or operation of such project or from other funds withdrawn from the Revenue Fund in accordance with the Resolution.

“**Service Area**” or “**LIPA Service Area**” means the Counties of Suffolk and Nassau and that portion of the County of Queens known as the Rockaways constituting LILCO’s electric franchise area as of the effective date of the Act. “**Service Area**” does not include the Nassau County Villages of Freeport and Rockville Centre, and the Suffolk County Village of Greenport.

“**Shoreham**” means the Shoreham Nuclear Power Station located at Shoreham, Long Island.

“**Shoreham Credits**” means credits to the bills of System ratepayers arising from the settlement of the Shoreham Property Tax Litigation, in each of the five years of 1998-2003 in Nassau County and the Rockaways in the aggregate amount of \$50 million per year and in Suffolk County in the aggregate amount of \$30 million per year.

“**State**” means the State of New York.

“**Subordinated Indebtedness**” means any bond, note or other evidence of indebtedness issued by LIPA in furtherance of its corporate purposes under the Act and secured by a pledge of the Trust Estate subordinate to the pledge thereof made by the Resolution in favor of the Bonds and Parity Obligations and otherwise as provided by the Resolution. Subordinated Indebtedness shall include, but shall not be limited to, Option Securities, Reimbursement Obligations other than Parity Reimbursement Obligations, and Financial Contracts to the extent provided by the Resolution.

“**Subordinated Indebtedness Fund**” means the fund established in accordance with the Resolution for payment of the principal and redemption price of and interest on Subordinated Indebtedness, subject to the provisions of the Resolution.

“**Supplemental Resolution**” or “**Supplemental Resolutions**” means, as the context requires, (a) the Twenty-Sixth Supplemental Resolution or (b) a resolution or resolutions of the Authority authorizing the issuance of a Series of Bonds or otherwise amending or supplementing the Resolution, adopted in accordance with the Resolution.

“**System**” means the Retained Assets and any System Improvements, but shall not include any Separately Financed Projects.

“**System Agreements**” means any agreements relating to the operation or maintenance of the System, the supply of power and energy to the System, and the provision of transmission and distribution services and capacity for the System.

“**System Budget**” means the combined Authority Budget and LIPA Budget, as amended or supplemented, adopted or in effect for a particular Fiscal Year, as provided in the Resolution and in the Financing Agreement.

“**System Improvement**” means any project, facility, system, equipment, or material related to or necessary or desirable in connection with the generation, production, transportation, transmission, distribution, delivery, storage, conservation, purchase or use of energy or fuel, whether owned jointly or singly by LIPA, including any capacity or output in which LIPA has an interest, heretofore or hereafter authorized by the Act or by other applicable State statutory provisions, including but not limited to demand side management programs; provided, however, that the term “System Improvement” shall not include any Separately Financed Project.

**“T&D System”** means the electricity transmission and distribution system owned by LIPA from time to time and all other assets, facilities, equipment or contractual arrangements of LIPA used to provide the transmission and distribution of Power and Energy within or to the Service Area.

**“Transition Charge”** means any rates, fees, charges or surcharges relating to the System or the customers thereof established by irrevocable rate order or other action or instrument, and applicable to or by the Authority or LIPA, in conjunction with the issuance of debt or other securities under a separate resolution, indenture or similar instrument (other than the Resolution) to the extent such rates, fees, charges or surcharges are pledged or otherwise encumbered or conveyed as security for such debt or other securities.

**“Trust Estate”** means collectively: (i) all payments received by the Authority from LIPA under the Financing Agreement, and all rights to collect and receive the same; (ii) all Revenues and all right, title and interest of the Authority in and to the Revenues, including all rights of the Authority to collect and receive the same, including but not limited to (a) all payments received by the Authority with respect to the Promissory Notes and all right, title and interest of the Authority in and to the Promissory Notes, including all rights of the Authority to collect and receive amounts payable thereunder and (b) any dividends received by the Authority as a result of ownership of any common or preferred stock or other evidences or an equity interest of the Authority in LIPA, and all rights to receive the same; (iii) the proceeds of sale of Bonds until expended for the purposes authorized by the Resolution; (iv) all Funds, Accounts and subaccounts established by the Resolution, including securities credited thereto and investment earnings thereon; and (v) all funds, moneys and securities and any and all other rights and interests in property, whether tangible or intangible, from time to time hereafter by delivery or by writing of any kind conveyed, mortgaged, pledged, assigned or transferred as and for additional security under the Resolution for the Bonds by the Authority, or by anyone on its behalf, or with its written consent, to the Trustee, which is authorized by the Resolution to receive any and all such property at any and all times, and to hold and apply the same subject to the terms of the Resolution.

**APPENDIX C**

**LIST OF CUSIP\* NUMBERS**

<b>Series</b>	<b>CUSIP</b>	<b>Maturity/ Mandatory Purchase</b>	<b>Coupon or Yield</b>	<b>Serial/Term</b>
<b>Electric System General Revenue Bonds</b>				
<b>Capital Appreciation Bonds</b>				
1998A	542691AY6	12/1/2019	5.280%	CABs
1998A	542690CE0	12/1/2020	5.300%	CABs
1998A	542690CF7	12/1/2021	5.300%	CABs
1998A	542690CG5	12/1/2022	5.300%	CABs
1998A	542690CH3	12/1/2023	5.300%	CABs
1998A	542690CJ9	12/1/2024	5.300%	CABs
1998A	542690CK6	12/1/2025	5.300%	CABs
1998A	542690CL4	12/1/2026	5.300%	CABs
1998A	542690CM2	12/1/2027	5.300%	CABs
1998A	542690CN0	12/1/2028	5.300%	CABs
<b>Capital Appreciation Bonds</b>				
2000A	542690NS7	6/1/2019	5.830%	CABs
2000A	542690NT5	6/1/2020	5.860%	CABs
2000A	542690NU2	6/1/2021	5.880%	CABs
2000A	542690NV0	6/1/2022	5.900%	CABs
2000A	542690NW8	6/1/2023	5.910%	CABs
2000A	542690NX6	6/1/2024	5.920%	CABs
2000A	542690NY4	6/1/2025	5.930%	CABs
2000A	542690NZ1	6/1/2026	5.940%	CABs
2000A	542690PA4	6/1/2027	5.950%	CABs
2000A	542690PB2	6/1/2028	5.950%	CABs
2000A	542690PC0	6/1/2029	5.950%	CABs
<b>Current Interest Bonds</b>				
2003C	542690UY6	9/1/2029	5.250%	Term
<b>(Federally Taxable - Issuer Subsidy - Build America Bonds)</b>				
<b>Current Interest Bonds</b>				
2010B	542690W32	5/1/2020	4.850%	Serial
2010B	542690W40	5/1/2021	5.100%	Serial
2010B	542690W57	5/1/2022	5.250%	Serial
2010B	542690W65	5/1/2024	5.450%	Serial
2010B	542690W73	5/1/2025	5.600%	Serial
2010B	542690W81	5/1/2026	5.700%	Serial
2010B	542690W99	5/1/2041	5.850%	Serial
<b>Current Interest Bonds</b>				
2011A	542690X72	5/1/2020	5.000%	Serial
2011A	542690X80	5/1/2021	5.000%	Serial
<b>Current Interest Bonds</b>				
2012A	542690Z70	9/1/2037	5.000%	Term
2012A	542690Z62	9/1/2042	5.000%	Term

<b>Series</b>	<b>CUSIP</b>	<b>Maturity/ Mandatory Purchase</b>	<b>Coupon or Yield</b>	<b>Serial/Term</b>
<b>Current Interest Bonds</b>				
2012B	5426902C5	9/1/2021	5.000%	Serial
2012B	5426902D3	9/1/2022	5.000%	Serial
2012B	5426902E1	9/1/2023	5.000%	Serial
2012B	5426902F8	9/1/2024	5.000%	Serial
2012B	5426902G6	9/1/2025	5.000%	Serial
2012B	5426902H4	9/1/2026	5.000%	Serial
2012B	5426902J0	9/1/2027	5.000%	Serial
2012B	5426902K7	9/1/2029	5.000%	Serial
<b>Current Interest Bonds</b>				
2014A	5426903D2	9/1/2034	5.00%	Serial
2014A	5426903E0	9/1/2035	5.00%	Serial
2014A	5426903F7	9/1/2039	5.00%	Term
2014A	5426903B6	9/1/2039	4.00%	Term
2014A	5426903C4	9/1/2044	5.00%	Term
<b>Current Interest Bonds</b>				
2014B	5426903H3	9/1/2019	2.755%	Serial
2014B	5426903J9	9/1/2020	3.107%	Serial
2014B	5426903K6	9/1/2021	3.407%	Serial
2014B	5426903L4	9/1/2022	3.633%	Serial
2014B	5426903M2	9/1/2024	3.883%	Serial
2014B	5426903N0	9/1/2025	3.983%	Serial
2014B	5426903P5	9/1/2026	4.133%	Serial
<b>LIBOR Floating Rate Tender Notes</b>				
2014C	5426903A8	5/1/2033	Variable	Term
<b>Current Interest Bonds</b>				
2015B	5426904L3	9/1/2019	4.00%	Serial
2015B	5426905B4	9/1/2019	5.00%	Serial
2015B	5426904M1	9/1/2020	4.00%	Serial
2015B	5426905C2	9/1/2020	5.00%	Serial
2015B	5426904N9	9/1/2021	4.00%	Serial
2015B	5426905D0	9/1/2021	5.00%	Serial
2015B	5426904P4	9/1/2022	3.00%	Serial
2015B	5426905E8	9/1/2022	5.00%	Serial
2015B	5426904Q2	9/1/2023	5.00%	Serial
2015B	5426904R0	9/1/2024	5.00%	Serial
2015B	5426904S8	9/1/2025	3.00%	Serial
2015B	5426905F5	9/1/2025	5.00%	Serial
2015B	5426904T6	9/1/2026	5.00%	Serial
2015B	5426904U3	9/1/2027	5.00%	Serial
2015B	5426904V1	9/1/2028	5.00%	Serial
2015B	5426904W9	9/1/2029	5.00%	Serial
2015B	5426904X7	9/1/2030	5.00%	Serial
2015B	5426904Y5	9/1/2031	5.00%	Serial
2015B	5426904Z2	9/1/2032	5.00%	Serial
2015B	5426905A6	9/1/2033	5.00%	Serial
2015B	5426904G4	9/1/2034	5.00%	Serial
2015B	5426904H2	9/1/2035	5.00%	Serial
2015B	5426905G3	9/1/2036	5.00%	Serial

<b>Series</b>	<b>CUSIP</b>	<b>Maturity/ Mandatory Purchase</b>	<b>Coupon or Yield</b>	<b>Serial/Term</b>
2015B	5426905H1	9/1/2037	5.00%	Serial
2015B	5426905J7	9/1/2038	5.00%	Serial
2015B	5426904J8	9/1/2040	4.00%	Term
2015B	5426904K5	9/1/2045	5.00%	Term
<b>LIBOR Floating Rate Tender Notes</b>				
2015C	5426904F6	5/1/2033	Variable	Term
<b>Current Interest Bonds</b>				
2016B	5426907T3	9/1/2020	5.00%	Serial
2016B	5426907U0	9/1/2021	5.00%	Serial
2016B	5426907V8	9/1/2022	5.00%	Serial
2016B	5426907W6	9/1/2023	5.00%	Serial
2016B	5426907X4	9/1/2024	5.00%	Serial
2016B	5426907Y2	9/1/2025	5.00%	Serial
2016B	5426907Z9	9/1/2026	5.00%	Serial
2016B	5426908A3	9/1/2027	5.00%	Serial
2016B	5426908B1	9/1/2028	5.00%	Serial
2016B	5426908C9	9/1/2029	5.00%	Serial
2016B	5426908D7	9/1/2030	5.00%	Serial
2016B	5426908E5	9/1/2031	5.00%	Serial
2016B	5426908F2	9/1/2032	5.00%	Serial
2016B	5426908G0	9/1/2033	5.00%	Serial
2016B	5426908H8	9/1/2034	5.00%	Serial
2016B	5426908J4	9/1/2035	5.00%	Serial
2016B	5426908K1	9/1/2036	5.00%	Serial
2016B	5426908L9	9/1/2041	5.00%	Term
2016B	5426908M7	9/1/2046	5.00%	Term
<b>Current Interest Bonds</b>				
2017	542691AA8	9/1/2021	5.000%	Serial
2017	542691AB6	9/1/2022	5.000%	Serial
2017	542691AC4	9/1/2023	5.000%	Serial
2017	542691AD2	9/1/2024	5.000%	Serial
2017	542691AE0	9/1/2025	5.000%	Serial
2017	542691AF7	9/1/2026	5.000%	Serial
2017	542691AG5	9/1/2027	5.000%	Serial
2017	542691AH3	9/1/2028	5.000%	Serial
2017	542691AJ9	9/1/2029	5.000%	Serial
2017	542691AK6	9/1/2030	5.000%	Serial
2017	542691AL4	9/1/2031	5.000%	Serial
2017	542691AM2	9/1/2032	5.000%	Serial
2017	542691AN0	9/1/2033	5.000%	Serial
2017	542691AP5	9/1/2034	5.000%	Serial
2017	542691AQ3	9/1/2035	5.000%	Serial
2017	542691AR1	9/1/2036	5.000%	Serial
2017	542691AS9	9/1/2037	5.000%	Serial
2017	542691AT7	9/1/2042	5.000%	Term
2017	542691AU4	9/1/2047	5.000%	Term

<b>Series</b>	<b>CUSIP</b>	<b>Maturity/ Mandatory Purchase</b>	<b>Coupon or Yield</b>	<b>Serial/Term</b>
<b>Current Interest Bonds</b>				
2018	542691BD1	9/1/2022	2.250%	Serial
2018	542691BE9	9/1/2023	5.000%	Serial
2018	542691BF6	9/1/2024	5.000%	Serial
2018	542691BG4	9/1/2025	5.000%	Serial
2018	542691BH2	9/1/2026	5.000%	Serial
2018	542691BJ8	9/1/2027	5.000%	Serial
2018	542691BK5	9/1/2028	5.000%	Serial
2018	542691BL3	9/1/2029	5.000%	Serial
2018	542691BM1	9/1/2031	3.375%	Serial
2018	542691BN9	9/1/2032	5.000%	Serial
2018	542691BP4	9/1/2033	5.000%	Serial
2018	542691BQ2	9/1/2034	5.000%	Serial
2018	542691BR0	9/1/2035	5.000%	Serial
2018	542691BS8	9/1/2036	5.000%	Serial
2018	542691BT6	9/1/2037	5.000%	Serial
2018	542691BU3	9/1/2038	5.000%	Serial
2018	542691BV1	9/1/2039	5.000%	Serial

\* CUSIP numbers have been assigned by an organization not affiliated with the Authority and are included solely for the convenience of the holders of the Authority's bonds. The Authority is not responsible for the selection or uses of these CUSIP numbers, nor is any representation made as to the correctness of the CUSIP numbers as indicated in this Appendix A.