

**POWER AUTHORITY OF THE STATE OF NEW YORK
SUMMARY OF THE TRUSTEES'
ANNUAL MEETING MINUTES
OF
May 24, 2016**

Introduction

Chairman Koelmel welcomed the Trustees and staff members who were present at the meeting. He said that the meeting had been duly noticed as required by the Open Meetings Law and called the meeting to order pursuant to the Authority's Bylaws, Article III, Section 3.

1. Adoption of the May 24, 2016 Proposed Meeting Agenda

Upon motion made by Trustee McKibben and seconded by Trustee Picente, the meeting Agenda was adopted.

RESOLUTION	Moved: T. McKibben	Seconded: A. Picente	Adopted: 5/0
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2. Consent Agenda:

<p>a. Governance Matters</p> <p>i. Minutes of the Annual Meeting held on March 29, 2016</p> <p>ii. Amendment to the Authority's By-laws -- Resolution (Justin Driscoll)</p> <p>iii. Committee Appointments -- Resolution (Chairman)</p> <p>b. Power Allocations</p> <p>i. Transfer of Power Allocations -- Resolution (Keith Hayes)</p> <p>ii. Hydropower Allocations – Extensions of Western New York Hydropower Allocations -- Resolution (Keith Hayes)</p> <p>c. Procurement (Services) Contracts</p> <p>i. Procurement (Services) Contract – Third-Party Brokerage Services – Contract Awards -- Resolution (Patrick Danner)</p> <p>ii. Procurement (Services) Contract – Training Design and Development Project – Contract Extension -- Resolution (Perry Allender)</p> <p>iii. Procurement (Services) Contract – Research and Technology Development Project with Hydro-Quebec – Contract Extension -- Resolution (Alan Ettlinger) STL</p> <p>iv. Procurement (Services) Contract – STL/FDR Power Project – Removal of Ice Sluice – Gates 4, 5 and 6 – Contract Award -- Resolution (Andrew Sumner/Patricia Lombardi) SENY</p> <p>v. Procurement (Services) Contract – SENY 500 MW Power Plant – Generator Step-Up Transformer</p>
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	Refurbishment and Installation – Contract Award -- Resolution (Tim Zandes)
vi.	Procurement (Services) Contract – SENY and WPO Facilities – Uniformed Security Guard Services – Contract Award -- Resolution (Lawrence Mallory)
vii.	Procurement (Services) Contract – Vernon Boulevard Small Clean Power Plant – Shoreline and Bulkhead Restoration – Contract Award -- Resolution (Andrea Luongo)
	d. Strategic Initiatives
i.	Employee Resource Requirements – Smart Generation/Transmission and Asset Management Strategic Initiatives -- Resolution (Ricardo DaSilva)

Conflicts of Interest

Members declared no conflicts of interest based on the list of contractors provided for their review.

Consent Agenda:

Upon motion made by Vice Chairman Nicandri and seconded by Trustee McKibben, the Consent Agenda was approved.

RESOLUTION	Moved: E. Nicandri	Seconded: T. McKibben	Adopted: 5/0
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Discussion Agenda:

3. Staff Reports:

3a. Report of the President and Chief Executive Officer

President Quiniones provided highlights of the Authority’s performance for the month of May (Exhibit “3a-A”).

Performance Scorecard

President Quiniones said for the month of April, all of NYPA’s performance measures as indicated on the scorecard met or exceeded their YTD targets, reflecting a strong performance throughout the organization.

President Quiniones then provided an outline of the top three areas of priority as part of the Authority’s Strategic Plan:

1. Generation and Transmission Projects – Reforming the Energy Vision

a. Marcy-South Series Compensation Project

The Authority is digitizing its generation and transmission system. To that end, it is applying smart grid technology on an existing 345 kV line that starts from Marcy and ends in the lower Hudson Valley. This will enable the Authority to import 440 megawatts more power from upstate into downstate New York. This is a critical undertaking, as most of the excess power, including renewables, is upstate and most of the load in the state goes to the southeast New York area. Applying smart grid technology will result in the power plants being more flexible, resilient, smart, and self-healing.

b. Life Extension and Modernization Program

This program was started in the late 1990s at the Niagara Power Plant. At the present time, the Authority is engaged in a transmission life extension and modernization program at the Lewiston Pump-Generation plant. Life extension and modernization is also being carried out at the small hydropower plants.

The goal of these modernization programs is to make the Authority's assets able to serve New Yorkers over the next 50 to 70 years. The Authority plans to invest billions of dollars in these programs which completion has been earmarked to the early 2020's. At the end of the Programs, all of the Authority's assets would have been overhauled and ready to serve New Yorkers for future years. At future Board meetings, staff will be requesting the Trustees to approve funding to invest and modernize the Authority's infrastructure.

2. Customer Solutions

The Authority plans to work with its customers as collaborative partners in advancing the state-of-the-art in the grid.

Renewable Energy

In order to make its customers' facilities more energy efficient, the Authority plans to install more load management devices which will allow customers to modulate their use of electricity depending on the needs and status of the grid.

Solar

To date, 50 of a potential 1000 schools across the state have solar energy with the assistance of the Authority. The Authority plans to continue with the projects for solar energy in public school; this will help the schools to save on their utility expenses.

Microgrids

The pace of technology, changes in regulations, and changes in customer preferences and behavior are driving the transformation of the grid. The Authority plans to build microgrids to help optimize the larger power grid and meet energy demands. The Authority is currently developing a microgrid for the Empire Plaza in Albany. It plans to build a 15-megawatt cogeneration plant. Some of the electric supply from this plant will be extended to neighboring buildings that are mission critical to the state. The goal is to reduce energy and make their operations more flexible. At the same time, should National Grid's system go down, the state government will continue to be functioning and running because of this microgrid.

Contracts

Many of the Authority's customers are approaching the expiration dates of their contracts for supply of electricity. The Authority plans to take this opportunity to develop a new and more forward-looking energy supply and energy management service agreement for its customers. More than 2.5 gigawatts of electricity load will be up for renegotiation and the Authority is looking forward to working with its customers to forge a more innovative partnership, going forward.

New York Energy Manager

In June, The Authority will be opening the New York Energy Manager at the Zen building at SUNY. The New York Energy Manager now monitors approximately 800 buildings; by the end of the year, it will be monitoring approximately 1200 buildings. At full load, this facility will be able to monitor about 3000-4000 state-owned/state-controlled buildings across the state as Phase 1, feeding real-time information into this network operations center.

Using smart meters connected to building management systems, sensors and other devices in those buildings, the Authority will feed data into the New York Energy Manager's network operations center where data analytics are used to optimize the use of energy of those customers. This is pursuant to Governor Cuomo's Executive Order 88 to reduce energy use in state buildings 20 percent by 2020.

In addition, the information gathered will be very valuable, not only to NYPA's customers, but to technology providers and utility and grid operators. The next step is use business models to leverage that information, working with those parties, to advance the state-of-the-art technology, not only in managing buildings, but optimizing the performance of the grid.

BuildSmart New York

The Authority will continue to work with SUNY, Office of General Services, Department of Corrections and other state-owned buildings to achieve the mandate of Executive Order 88 which is to reduce energy use intensity 20 percent by 2020.

In response to a question from Trustee Nicandri, President Quiniones said the Authority has statutory authority, mandated by Executive Order 88, to offer services, including financing, for government buildings to optimize their energy usage. The Authority has, however, been providing energy efficiency services to counties, cities, towns and villages.

3. Canal Corporation

The Authority is currently in discussion with the Thruway Authority regarding the integration of Canal Corporation. Pursuant to the legislation, starting on April 1st, the Authority will begin

reimbursing the Thruway Authority for the cost of running Canal Corporation. Part of the discussions with Thruway Authority is to ensure that the Authority has a governing process and document that will make the transition occur efficiently.

By January 2017, the Authority will have full, not only financial, but operational responsibility of the Canal Corporation as part of an independent and separate subsidiary within the NYPA organization. To that end, the Authority has assigned a transition team with Robert Lurie leading the Executive Steering Committee and also an integration team comprised of approximately 30-50 NYPA personnel to work with their counterparts at Canal Corporation and at the Thruway Authority. To date, the Authority is on schedule and on budget and is executing the plan methodically to make sure that the transition occurs effectively and efficiently by January 1, 2017.

3b. Report of the Chief Risk Officer

Mr. Soubhagya Parija provided highlights of the report to the Trustees. (Exhibit “3b-A”)

Risk Assessment Results

Mr. Parija said as a result of the risk assessment process, the Authority did a deep dive on the top risks. The top risks have not changed; however, although still in the top risks, Workforce Health and Safety; Regulatory/Legislative Environment; Commodity Market Volatility; and Disruptive Innovation risks have increased.

Mr. Parija then provided a report on Enterprise Risk Management's activities:

Cyber risk assessment has been completed and the Authority is in the process of implementing some of the action plans as a result of that risk assessment project. Enterprise Risk (“ER”) is working closely with the Chief Operating Officer, the Chief Information Officer and other stakeholders to ensure that cyber risks continue to be addressed.

Reputational Risk Assessment was launched and Phase 1 has been completed.

Reputational risk has been defined as it applies to the Authority as well as the stakeholders. This will help in the development of a comprehensive risk management framework.

Commodity Risk Optimization Project – Pricewaterhouse Coopers (PwC) was engaged to assist the Authority in managing and improving its commodity portfolio.

Canal Corporation – Enterprise Risk is working with the Canal Corporation regarding its transition to the Authority.

Staffing – Mr. Parija introduced the following personnel hired to support ER to the Board: Thomas Spencer, Senior Director of Enterprise Risk; Tom Ho, Senior Director of Operational Risk who will be in charge of operational risk as well as the commodity risk management program; Sara Ricci, Director of Business Resiliency who will be coordinating all the business continuity and emergency management programs launched throughout the Authority. She is currently working on developing the road map for business resiliency, going forward, and will report to the Board at a future meeting.

3c. Report of the Chief Operating Officer

Mr. Joseph Kessler, Senior Vice President of Power Generation, provided highlights of the Chief Operating Officer's report to the Trustees (Exhibit "3c-A").

Performance Measures

Generation Market Readiness

- No significant outages occurred during April.
- The monthly value was 99.96% above the target of 99.40%. The YTD value was 99.81% above the target of 99.40%.

Transmission Reliability

- There were no significant transmission outages to report for April.

- April's performance metric of 92.77% was above the target of 91.80%. The YTD actual of 94.77% was also above the target of 92.97%.
- Y49 Cable – a fault occurred on the Y49 cable which will impact the Generation Market Readiness' measure. Staff is currently conducting a Root Cause Analysis and the impact will be reported to the Board at the July meeting.

Environmental Incidents

There were no significant environmental incidents for the month of April.

Two minor oil spills and a glycol leak occurred that were contained; however, the Authority is required to report them to the DEC.

Safety

A DART injury occurred at the Niagara Project and an OSHA injury occurred at the Albany Office. Both were minor material handling injuries which resulted in lost time, therefore recordable incidents.

Strategic Asset Management Plan

Asset Management work streams:

1. Integrated Smart Operations Center ("ISOC") – to monitor and diagnose apparent issues on the network.
2. Smart O&M – the use of advance intelligent devices to do preventative maintenance within the Authority's plants and the transmission assets.
3. Data Analytics – to facilitate the flow of large data into actionable information.
4. Employee Engagement:
 - Financial Acumen Training for staff making investment decisions for the Authority's current assets.
 - Asset Managers
 - Regional Programs with cross-functional teams to identify tangible projects for the Authority, going forward.

In response to a question from Vice Chairman Nicandri, Mr. Kessler said although Operations is switching from mechanical to digital asset management, the emphasis on skillset have been the resources from a human capital perspective. The Authority will need more technicians and some future job description will need to be determined. The roles of the skill craft and the Authority's complement of those skill crafts will have to change in the future. Operations

can save on maintenance, but there is also a compliance issue to consider. Technicians serve a critical role in compliance; therefore, the technicians are going to be an integral part of this change.

3d. Report of the Chief Financial Officer

Mr. Robert Lurie provided highlights of the report to the Trustees (Exhibit “3d-A”).

Net Income

Net income for the four months ended April 30, 2016 was \$2.8 million, which was \$12.4 million lower than the budget (\$15.2 million) primarily due to a lower net margin on sales (\$53.9 million) substantially offset by lower operating expenses (\$31.4 million) and a mark-to-market gain on the Authority’s investment portfolio (\$10.7 million, lower than anticipated market interest rates). Margins on market-based sales were lower than budgeted due to significantly lower prices resulting in lower market revenue at Niagara and St. Lawrence.

Results for the month of April reflected net income of \$11.4 million versus a budget of 7.6 million. The positive variance of \$3.8 million was due primarily to lower operating expenses (\$9.9 million, less than anticipated spending in several programs) substantially offset by a lower net margin on sales (\$5.5 million).

Net income for the year is projected to be \$20-\$50 million with the final result varying based on the level of spending in O&M and other programs for the remainder of the year. Projections exclude the impact of the funding of NY State Canals for 2016 as a funding agreement has not yet been finalized.

Hydro Generation – Staff budgeted very conservatively on hydro flows this year; however, there was more water flow than budgeted, consequently, this year Authority has a positive variance on hydro generation. The Authority expects this trend to continue where its forecasts are coming in at the expected value although it budgeted below that value.

Energy Price – The Authority’s budget was conservative compared to the market forecasts. Because of the mild winter, energy prices turned out to be extremely low and this affected the

Authority's energy margins. This was, however, offset by savings on the operating expense and a paper gain in the Authority's investments.

In response to a question from Chairman Koelmel, Mr. Lurie said there are some state subsidies or state support programs that have gotten off the ground slower than expected; therefore, they will be underspent through the year.

In response to a question from Trustee McKibben, Mr. Lurie said typically, there is an increase in demand during the seasonal winter period; the Authority did not see that increase in demand this year because of the mild weather in the northeast. He said there were other factors on the supply side that caused the lower energy prices and asked Jill Anderson to expand on this issue. Ms. Anderson said, as a comparison, energy prices for the months of November, December and January were the lowest since the markets were created 15 years ago in New York. So, even adjusting for inflation, the Authority saw the lowest prices this year; that is primarily driven by low natural gas prices. There is also an issue with generators that are selling in at zero dollars or even negative prices because of an excess of supply, including imports, and that also drives prices down.

In response to further questioning from Trustee McKibben, Mr. Lurie said the Authority continually tries to accelerate its strategic initiatives. In his report, Mr. Kessler mentioned some of the things the Authority is doing in asset management and in smart generation and transmission. There will be some acceleration in those areas and staff will report to the Board when they have firm plans on how that might affect the forecast. Also, the areas that have slowed down are not those directly related to the Authority's strategic initiatives.

In response to a question from Chairman Koelmel, Mr. Lurie said when the Authority prepared its budget it expected a much lower energy price environment. Also, although it expected that there would be the usual seasonal increase in prices due to natural gas prices typically being higher in the winter and other factors, it did not foresee that seasonal effect. The Authority's

budget for energy prices for the rest of the year is actually in keeping with the market price.

Therefore, the Authority does not expect the same kinds of negative variances, going forward.

In response to still further questioning from Chairman Koelmel, Ms. Anderson said the Authority's prediction, along with many others in the market, is that gas prices is going to stay low for a long time and this will keep our prices low. The producers are making money even at the low prices. And, as renewable generation is built wholesale market prices will also be kept low.

In response to a question from Vice Chairman Nicandri, Ms. Anderson said the Authority's conservative hydro generation projection is not related to having water spill in the Long Sault Dam. The most recent spilling was the result of an outage because of upgrades of the transformer at the substation by Operations. This was a technical issue and not a market issue.

In response to a question from Chairman Koelmel, Mr. Lurie although the Authority has \$3 billion in revenue, since it is a non-profit organization it aims to operate on very small profit margins.

In response to further questioning from Chairman Koelmel, Mr. Lurie said the Authority will need to analyze the seasonal effects and not the long-term reduction in energy prices, which it expected, when preparing its budget next year. In addition, the Authority expects its projected income to be as budgeted largely because of a positive variance in hydro generation and the operating expenses. No further deterioration is expected in energy margins and energy prices. Importantly, the projection does not include the effect of the Canal Corporation's integration with the Authority. The legislation transferring the Canal Corporation to NYPA includes a provision directing NYPA to reimburse the Thruway for expenses that they incurred during the period of April through December 31 this year. The Authority is currently in discussion, and working with the Thruway to develop an agreement to reimburse those expenses. This assumption was not in the Authority's projection; however, when it does enter into that agreement those expenses will be sufficient to take the Authority's projection to the negative in 2016.

In response to a question from Trustee Picente, Mr. Lurie said there is no debt service attributable to the Canal Corporation, nor is there any debt coming to the Authority from the Canal Corporation or from the Thruway.

In response to a question from Trustee McKibben, Mr. Lurie said the cost associated with the Canal Corporation's transfer could be greater than \$47 million. President Quiniones added that, from an accounting perspective, the reimbursement to the Thruway is being treated as operational expenses, even though it includes capital and O&M expenses.

In response to a question from Chairman Koelmel, Mr. Lurie said the Authority has already paid \$65 million to the state for the period January through March. In addition to that the Authority has to pay three quarters of a year expenses for the Canal Corporation. Therefore, from a cash-flow standpoint, the Authority's operating income may be better next year. In addition, the return on the Authority's assets for 2016, including the negative effects of the HTP transmission line, is slightly below its cost of capital.

Corporate Goals

The Authority has identified three corporate goals in support of its 2020 Strategic Plan.

1. **Financial effectiveness** focuses on maximizing the amount of financial capacity the Authority has at its disposal to make capital investments to help achieve its strategic goals.
2. **Operational effectiveness** focuses on ensuring that the Authority is cost efficient and reliable in its operation without compromising risk.
3. **Value from Energy** focuses on the value that the Authority's customers receive from the energy it produces and services it delivers.

Metrics are developed that are aligned with these three goal areas and the strategic initiatives that underlie them. In order to achieve this, the Authority has developed nine metrics

that most appropriately measure its success. Five of these metrics directly align to the three corporate goals:

1. Economic Value Added (financial effectiveness) - this is a measure of the Authority's capital investment productivity or economic profitability.
2. Three metrics are proposed under Operational Effectiveness Goal:
 - i. Non Fuel O&M cost per megawatt hour – this is a measure of operating efficiency as it relates to the Authority's production of electricity.
 - ii. Commercial availability - this is a way to measure reliability. This is similar to the existing metric the Authority has for generation and transmission availability.
 - iii. Load factor optimization – this is a way to measure the economic efficiency of the Authority's electricity generation. It is an expression of how much energy was used in a time period by customers, versus how much energy would have been used if the power had been left on during a period of peak demand.
3. Value of Carbon Reduction (Value from Energy) - this measures the value of avoided / created carbon based on the Authority's efforts to run clean generation assets, to manage energy efficient facilities and to deliver energy efficiency and other related services through its Customer Energy Solutions business. The Authority, in partnership with its customers, is working to identify means to reduce carbon intensity in the energy system.

In response to a question from Chairman Koelmel, Mr. Lurie said the Authority will present information as to where it stands and the targets for each metrics to the Board at the July meeting.

4. **Power Allocations and Proceeds**

a. **Annual Compliance Review – Recharge New York Power Program**

Mr. Keith Hayes provided highlights of staff's recommendations to the Trustees.

In response to a question from Chairman Koelmel, Mr. Hayes said as part of the account management process, staff has dialogue with the companies during the compliance period. Based on extenuating circumstances, it is being recommended that no action be taken on companies that are increasing jobs but fell below the 90 percent compliance threshold. Last year, the Authority temporarily lowered the 90% contractual threshold to 75%. The Authority is now effectuating the 90 % threshold language in the contract.

In response to further questioning from Chairman Koelmel, Mr. Lurie said at the time the Authority commenced economic development its contracts stipulated a 90% compliance threshold. Last year, the Empire State Development Corporation temporarily lowered its threshold for the Excelsior Program to 75% compliance and the Authority matched this threshold with its Western New York hydropower customers.

Responding to still further questioning from Chairman Koelmel, Mr. Lurie said customers have to report their jobs each month; while some of those customers may have been below 90% as an average, if the last four months of the year they were above the 90% threshold, the Authority considered them trending in the right direction and would take no action. If a company is consistently below its contractual commitment, staff will recommend that action be taken. President Quiniones added that more importantly, the Authority is not taking all of power away from those companies not in compliance, but reducing it proportionately to the amount of their under-compliance.

In response to a question from Vice Chairman Nicandri, Mr. Hayes said the 75% reduction was for one year only and the Authority is now enforcing the 90% contractual compliance threshold.

In response to a question from Trustee McKibben, Mr. Lurie opined that the Authority is lenient to those companies that are under on average but trending upward.

In response to a question from Chairman Koelmel, Mr. Hayes said the total reduction for all companies is less than four-and-a-half megawatts. He said that with low energy prices, the impact

is a lot less to the business than it may have been historically; therefore, the Authority has not received negative feedback based this action and continues to engage in discussion with those companies.

Upon motion made by Vice Chairman Nicandri and seconded by Trustee Picente staff's recommendation was unanimously adopted.

RESOLUTION	Moved: E. Nicandri	Seconded: A. Picente	Adopted: 5/0
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b. Award of Fund Benefits from the Western New York Economic Development Fund Recommended by the Western New York Power Proceeds Allocation Board

Mr. Keith Hayes provided highlights of staff's recommendations to the Trustees.

In response to a question from Trustee McKibben, Mr. Hayes said working with ESD, staff reviews all the necessary information from the companies; however, the contracts are not constructed and executed until after the Board's approval of staff's recommendation.

RESOLUTION	Moved: T. McKibben	Seconded: A. Kress	Adopted: 5/0
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5. Informational Item: The Role of Storage in the Transformation of the Energy Industry

Mr. Lurie said energy storage is becoming much more economical and is, potentially, filling a critical role to make the system more efficient. He said staff will make a presentation on the role of storage in the energy industry in an effort to introduce a strategic review of the business and competitive environments and industry changes. He then introduced Mr. Raj Diwan, Manager of Strategy Planning and Delivery and Mr. Guy Sliker, Director of Integrated Grid who provided an overview of the role of storage in the transformation of the Energy Industry.

Mr. Raj Diwan provided the following report:

“Energy Storage

- Storage is a means to hold energy that is produced in low periods of demand for use during periods when it is needed.
- Storage solves the basic dilemma posed by renewables. For example, solar is intermittent and produces energy during the day, often at times when customers may not need to consume as much since peak usage generally occurs when the sun has gone down.

There are two types of storage:

- i. Front-of-the-Meter which is directly connected to the transmission/Distribution grid; and
- i. Behind-the-Meter (Residential/Non-Residential) which is connected to a distribution system behind the customers’ meter.

Storage Technologies

There are several different storage technologies:

- a. NYPA’s B-G pumped hydro plant is an excellent example of one form of storage technology;
- b. Batteries are becoming more and more prevalent. For example, electric vehicles which can be considered a storage device, as well as a battery pack that you may have in your home or garage;
- c. Utility scale solar;
- d. flywheel, thermal, compressed air.

Key Trends

The U.S. storage market, as a whole, is experiencing tremendous growth and is forecasted to go up considerably over the next four years, up to 1.7 gigawatts, as predicted by GreenTech Media.

The markets for storage are very complex. For instance, whereas markets such as California or the mid-Atlantic region with PJM are structured to optimize the use of storage, there are some issues that New York still has to work through in order to make storage economically viable.

Role and Potential Impacts of Energy Storage

- Some state/regional policies are more favorable to storage.
- Storage is not yet economically viable in New York apart from certain C&I customer segments.
- Technology is still developing to provide power quality or duration needs.
- Front-of-meter market is driving growth in the U.S. and utilities are becoming increasingly interested in renewable plus storage solutions.
- New generation of technology savvy market players entering the market (e.g. Tesla wall).
- The circulated grid has been designed to meet a peak load that often occurs for a small amount of time in relation to the course of the year, resulting in a significant amount of idle capacity.

Storage can help improve system efficiency (affordability) and reliability by:

- a. allowing the storage of energy during periods of low demand (lower cost) so it can supplement supply during periods of peak demand (lowering costs);
- b. allowing customers to store energy prior to extreme weather events (reliability);
- c. working side-by-side with intermittent renewables to provide a reliable, consistent source of energy to consumers (reliability).

Storage can also enable the effective utilization of renewables (Sustainability) by using the energy generated from them at times when they are most needed in the system – reducing the State's need for traditional, carbon generation

As an enabler of affordable, reliable, and clean renewable generation, one could argue that storage will be the single most important innovative technology in the successful delivery of the state's 50% renewable energy goal by 2030.

It is important that NYPA takes a well thought-out approach on how it addresses trends in storage. On the one hand, NYPA is already working with customers to deploy storage technology on the grid and will continue to do so in an opportunistic way (e.g. Suny New Paltz). On the other hand, as the storage trend unfolds and likely implications on the energy system begin to unveil, there are some things that NYPA should consider doing to position itself to take advantage of revenue opportunities for the organization and energy affordability, reliability and sustainability benefits for its customers and the State of New York.

The biggest risk to NYPA regarding storage is either not participating or participating too late.

- NYPA must stay close to what private investors are doing in the storage space – they are a good early indicator of growth;
- NYPA must observe and perhaps try to influence policy market reform for storage technology;
- NYPA should keep an eye on key technology players such as Tesla, Panasonic, Solar City, and Google who are both potential competition and partners in the energy delivery space;
- NYPA should draw on its energy technical expertise; financial capacity and infrastructure to support programs that help address typical storage challenges of duration, capacity, power quality and efficiency.

Storage Activities and Opportunities

Mr. Guy Sliker discussed some of NYPA's storage activities and opportunities. He said, over the years, NYPA has a lot of experience with storage. NYPA' has large pumped hydro facilities which it continue to operate on behalf of its customers in New York State; however, given

the current market conditions in New York, these hydro facilities are not being operated at full capacity. NYPA continues to look at those assets to see how they might be operated differently under new scenarios for penetration of renewables, or the changing markets in New York.

The Integrated Grid Group does a lot of work in due diligence with a focus on the customer side of the meter. Staff has tracked policies and markets that are emerging around storage and has met with several storage vendors and technology players. Over the years, the Authority installed storage mostly at customer sites where a customer might have a need for storage, e.g. the installation of batteries and ultra-capacitors. The Authority also had success in its electric transportation program, assisting its customers in getting a large number of electric drive vehicles on the road.

The Authority is currently focusing on how the batteries in those vehicles and the charging equipment that is used to charge those vehicles can be used for grid support services. To that end, the Authority has recently installed equipment that can respond to demand response programs by the utilities to turn the chargers off during peak periods or to enable the users of those vehicles to charge them during periods of low electricity costs.

Microgrids are another area of opportunity for storage. The Authority is currently working on a microgrid project at SUNY New Paltz whereby a storage device charged by solar will be used to integrate the system with the local utility and provide grid services back to the utility with some of the smart functions of the storage device.

The Authority is also working closely with its municipal and electric cooperative customers on their load profiles related to their hydro allocations using thermal storage.

Mr. Sliker continued that given current markets a lot of the storage technologies that are emerging in other markets like PJM are not highly economic for many of the Authority's customers to adopt. However, there are other opportunities for storage that are emerging especially under Reforming the Energy Vision ("REV") initiative that the Authority and its customers can adopt.

In response to a question from Chairman Koelmel, Mr. Sliker said how distributed storage, such as on the residential side of the meter, will provide reserve capacity to the grid is still undefined; and in what way storage can close the gap will be dependent on the market and reliability rules which are still unwritten. President Quiniones added that, even with the growth rate, storage is still very small relative to the entire system.

Mr. Lurie said that there are a limited number of markets in the entire U.S. that are going to put the incentives necessary in place for penetration to occur. In some markets, e.g. California and New York, the growth for storage will be concentrated until the regulatory change is adopted more broadly. If REV puts the incentives in place, there could be a faster growth rate in New York. As Mr. Sliker mentioned, it depends on several factors, not just changing the pricing signals, but it will also allow customers who have this capacity at their premises to sell that capacity back to the grid; however, the system does not allow that at the present time. This “two-way” and “multi-way” sale of power will make it take off; however, it is still being developed in the regulatory model and REV is attempting to do that. Mr. Lurie said in the near future, New York City or Long Island will be able to combine storage with solar and be able to match what the local utility is charging.

6. Board Resolution – Edward Welz

The following resolution, as presented by President Quiniones, was unanimously adopted by the Trustees.

President Quiniones made the following comments in honor of Mr. Ed Welz’s retirement from the Authority:

“When historians write about the Power Authority Ed Welz will be noted as the best Chief Operating Officer of this 85-year-old institution.

Robert Moses built a lot of our initial power plants -- St. Lawrence and then Niagara. NYPA then continued to build the transmission system -- Blenheim-Gilboa; the nuclear plants, Indian Point 3 and James A. Fitzpatrick; the Small Clean Power plants in the city; the Combined Cycle plants, both in New York City and Long Island. For the record, Ed Welz was personally involved in

all of the modernization, overhaul and upgrades of those facilities. And now, the Transmission Life Extension and Modernization and the small hydropower plants Life Extension and Modernization projects all occurred under the leadership of Ed Welz.

And so, while Robert Moses and others built our original assets, it was under Ed's leadership that all of them have been modernized for the benefit of all New Yorkers over the next 40 to 50 years.

I joined NYPA in October of 2007 and I have been blessed to have Ed with me in the foxhole. I can rely on him anytime. And I know that when it came to the operations of the Power Authority I knew he had that covered -- he had my back covered. His loyalty and friendship has been a blessing and I consider him a friend.

It is with mixed emotions that I say it's time for Ed to move on. It reminds me of sports -- I did not want Derek Jeter or Mariano Rivera to stop playing for the Yankees, but it was time for them to retire and it's similar to Ed. And if we can hang numbers up on the NYPA rafters, I would hang Ed's jersey, No. 34, which is the number of years that he has given this Authority.

So, Mr. Chairman, before we hand him the resolution and statements from the board I would like to read a very short letter from Governor Cuomo (Exhibit "6-A").

"Dear Ed,

I am proud to offer my warm congratulations and profound thanks as you retire from a long, exemplary career at the New York Power Authority.

For 34 years your leadership, skill, and tireless dedication have made you an invaluable asset to NYPA, helping to build a cleaner, smarter, and more resilient power grid for New York while meeting some of the most critical energy and environmental challenges in our state's history. Your expertise and guidance have helped immeasurably to modernize the Authority and advance our landmark Reforming the Energy Vision initiative, and your tireless efforts during our recovery from Tropical Storms Irene and Lee and Superstorm Sandy only enhanced your tremendous value to our state.

On behalf of all New Yorkers, thank you for your history of extraordinary leadership, service, and commitment, and congratulations again on your well-deserved retirement. Best wishes to you, Lenore, and your family for much future success and happiness.

Warmest regards.

Sincerely,
Andrew M. Cuomo"

Chairman Koelmel made the following remarks

“On behalf of the Board I want to thank Ed for his incredible contributions to the organization and all it serves. Ed has made the Board’s job that much easier. It is always great to go out on top and Ed is certainly doing that in terms of where he is leaving the organization. Ed has created the team he has positioned to step in and begin to fill his shoes and take the organization to the next level. So, congratulations. It’s been an honor and a pleasure to work with you.”

Vice Chairman Nicandri said he has been serving on the Board for almost eight years. Ed made it a pleasure and an honor to be a member of the Board of Trustees because he has always been very helpful. When he needed education, Ed was more than willing to provide it. So it’s been an honor and a pleasure working with Ed.

In response Mr. Welz said, “This Board has been incredibly supportive of the Operations group and I cannot thank each and every one of you enough for always being there and understanding the challenges that they have. As Gil said, whether it was Sandy or Lee or Irene and him getting called to go up to BG and us being down SENY where we thought the storm was going to be, we’ve weathered a lot. And I do consider Gil a friend and, as any family, you have your ups and downs, but you know you are stronger for it in the end. And, I want to just reiterate to the Board how much I truly do appreciate the solid support that you have given us over the years. You have always been there to help us to be successful and I want to thank you very, very much. I love this place and it’s going to be hard to leave all the people that I’m very, very close to. I just

want to take that opportunity to thank each and every one of you for the tremendous support you've given me, personally and professionally, within this organization over the past 34 years.”

RESOLUTION	Moved: E. Nicandri	Seconded: A. Picente	Adopted: 5/0
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7. **Motion to Conduct an Executive Session**

RESOLUTION	Moved: E. Nicandri	Seconded: A. Picente	Adopted: 5/0
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8. **Motion to Resume Meeting in Open Session**

RESOLUTION	Moved: E. Nicandri	Seconded: A. Picente	Adopted: 5/0
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9. **Next Meeting**

RESOLUTION	Moved: E. Nicandri	Seconded: A. Picente	Adopted: 5/0
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