

**POWER AUTHORITY OF THE STATE OF NEW YORK
SUMMARY OF THE TRUSTEES'
MEETING MINUTES OF**

January 26, 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 January 26, 2016 Proposed Meeting Agenda

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

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

<p>a. Governance Matters</p> <ul style="list-style-type: none">i. Minutes of the Regular Meeting held on December 15, 2015ii. Election of the Vice chair of the Authority <p>b. Power Allocation</p> <ul style="list-style-type: none">i. Contracts for the Sale of Expansion Power - Transmittal to the Governor <p>c. Procurement (Services) Contracts</p> <ul style="list-style-type: none">i. NIAGARA - Procurement (Services) Contract – Niagara Power Project – Relicensing, Compliance and Implementation of the Strawberry Island Wetland Restoration Habitat Improvement Project – Contract Awardii. SENY - Procurement (Services) Contracts – SENY 500 MW Plant – Cathodic Protection – Engineering Design and Construction Services – Contract Extensioniii. SENY - Procurement (Services) Contract – Legal Services for SENY Region – Contract Award
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| <p>d. Real Estate</p> <p>i. Expansion of Leased Premises – 30 South Pearl Street, Albany, New York.</p> <p>e. Finance</p> <p>i. Release of Funds in Support of the Residential Consumer Discount Program Created in Connection with the Recharge New York Power Program</p> <p>ii. Release of Funds in Support of the Northern New York Power Proceeds Allocation Act.</p> |
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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 Trustee Kress and seconded by Trustee Flynn, the Consent Agenda was approved.

Chairman Koelmel said he appreciated Trustee Nicandri’s willingness to serve as Vice Chairman of the Board and congratulated him on his appointment (Item #2a-ii).

RESOLUTION	Moved: A. Kress	Seconded: T. Flynn	Adopted: See note above
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Discussion Agenda:

3. Staff Reports:

3a. Report of the President and Chief Executive Officer

President Quiniones provided a year-end summary of the Authority’s performance, highlighting some of the Authority’s accomplishments during 2015 (Exhibit “3a-A”).

Performance Scorecard

President Quiniones said the Authority had a successful year in 2015 despite some operational challenges in the early part of the year and also challenges as a result of the collapse of the price of electricity in the wholesale markets. He said the challenges in the early part of the year were due to lack of anticipated water flow, based on the Authority's forecast, and some unanticipated forced outages which caused the Authority not to meet the Generation Market Readiness and Safety performance goals. Overall, the Authority had an excellent year, its Net Income, excluding State assistance and voluntary contributions, was over \$300 million which is in line with the Authority's normal financial performance.

President Quiniones then provided the following report on the Authority's accomplishments during the year 2015.

"2015 Accomplishments

The 2015 accomplishments underscore NYPA's continuing commitment to its Mission Statement which is to "Power the economic growth and competitiveness of New York State by providing customers with low-cost, clean, reliable power and the innovative energy infrastructure and services they value."

The Mission Statement guides our Strategic Vision 2020 and our ambitious plan to help NYPA stay ahead of the curve in an industry undergoing significant and rapid changes.

Organizational Health

We can ensure our success only when all of us come together for a common purpose. That's why we take great satisfaction in the agreement NYPA reached with the International Brotherhood of Electrical Workers union on a contract that runs through March 2019. This important milestone speaks volumes to our efforts to become one NYPA.

With this essential goal in mind, we worked hard to engage with all employees—both salaried and union—across multiple locations. Still, we feel there is room for improvement so that we can create an even more productive workplace.

With this goal in mind, we conducted an anonymous survey of salaried employees through the Strategic Vision 2020 lens.

We heard from 899 employees—an 86 percent response rate—and received more than 5,000 comments. The survey confirmed that NYPA is good at overall project execution, employee relationships and safety, and we are building on many employee recommendations that will strengthen our organization’s communication, teamwork and performance, and our ability to lead through change.

Strategy Implementation

The cornerstone of our Strategic Vision 2020 strategy, as we have often discussed, is our multi-year effort to enhance our Smart Generation and Transmission capacity.

Great examples of our moving forward on this objective include the Marcy-South Series Compensation smart-grid project to relieve transmission congestion, which will be completed by June of this year, and the introduction of SMART Path—a multiyear project to replace our oldest asset, the 230-kilovolt Moses-Adirondack transmission lines that run 85 miles between the St. Lawrence-Franklin D. Roosevelt Power Project in Massena and a substation in Lewis County in the Adirondacks.

Customer Experience

This has been a very busy year for energy efficiency and economic development.

K-Solar

Working with the New York State Energy Research and Development Authority ('NYSERDA') and the State Education Department, we advanced the K-Solar program to help schools lower energy costs by using solar power.

More than 330 schools statewide have received free solar site assessments, and to date, 10 districts have signed agreements totaling 14 megawatts ('MW') of solar power.

We recently announced that the New York Institute for Special Education in the Bronx, which has been around for 185 years, will be the site of the State's first solar schools project.

Economic Development

One important example of NYPA's commitment to the New York communities is the completion of the 10-year review of the St. Lawrence relicensing process.

The towns and villages surrounding our St. Lawrence facility will see an array of necessary improvements as we work together to address economic development, environmental and transportation issues. We will be turning a well-designed blueprint into action for a region of the State that needs our assistance.

Financial Performance

The three leading credit-rating agencies issued strong ratings for NYPA's Series 2015 A Revenue Bonds issue for up to \$80 million, with each citing NYPA's prudent fiscal management. Moody's Investor Service assigned an AA1 rating, Standard & Poor's assigned an AA long-term rating and Fitch Ratings assigned an AA rating.

Some of the financial indicators also speak to our strong financial position:

- ***Adjusted Net Income: \$304 million (before any assistance to New York State)***

- **Debt Service Coverage Ratio: 2.75**
- **Debt to Total Capitalization: 28 percent (extremely low relative to our industry)**
- **Days Cash on Hand: 235 (a measure of liquidity)**

Despite the collapse in electricity prices due to very low natural gas prices in the market place, NYPA remains fiscally solid.

Enterprise Risk Management

Mr. Soubhagya Parija was hired as Senior Vice President and Chief Risk Officer.

In 2015, a modified framework to manage risks was introduced at the Power Authority that focuses on optimal resource allocations in order to protect, as well as enhance the value of the organization.

Guided by the principles of risk and opportunity, differing levels of controls will be established based on the type and magnitude of risk while ensuring alignment with strategic objectives.

The protection of our assets, our customers and the reliability of the grid are paramount at the Power Authority. With cyber risk becoming a growing concern for all organizations, we took a significant step in mitigating exposure to cyber threats with the acquisition of cyber insurance and other cyber activities across the company.

Audit

Ms. Jennifer Faulkner was hired as our new Senior Vice President of Internal Audit.

The Internal Audit department underwent significant changes in 2015, from revision of its mission to changes in methodology. We created and executed a transformation program focusing on improving people, process and technology within the function.

Internal Audit's new mission is to help improve operations, add value through

consulting and being a trusted business partner with all of the Business Units of the Power Authority.

Internal Audit has worked to help our capacity to prevent, detect, correct and escalate critical issues and bridge the gap with managers by speaking their language. We have engaged in high-visibility activities through audit, assessment and consulting activities addressing risk. Internal Audit successfully completed the 2014 and 2015 Audit Plans during 2015.

The team executed a 2016 risk assessment which led to the development of the 2016 Audit Plan, ensuring that, companywide, significant risks are being addressed through audit, consulting and assessment activities.

Operational Excellence

As I previously noted in our yearly Operational Scorecard, we have an important story to tell about what we were able to achieve throughout 2015. Clearly, NYPA is well positioned for 2016 and beyond, guided by Strategic Vision 2020 and working within the framework of Governor Andrew Cuomo's Energy Policy agenda.

President Quiniones ended by expressing his gratitude for the Board for their support, assistance, guidance and counsel. He said the Authority will encounter many significant challenges in the year ahead, but with the members' help, it will build on its considerable progress in the months ahead."

Chairman Koelmel said that on behalf of the Board he wanted to thank President Quiniones and his team for the Authority's very strong year of performance. He said despite the external influences which were beyond everyone's control, President Quiniones continued to navigate through them and built an even stronger foundation for the organization. He continued that the Board is very pleased and proud to know that the organization is even better positioned for 2016

than it was in 2015, and looks forward to an improved 2016 based on the operational objectives and key strategic initiatives that are in place.

3b. Report of the Chief Risk Officer

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

Top Enterprise Risks

Mr. Parija said that based on feedback from the Trustees and senior staff, two risks, Workplace Safety and Regulatory Environment Changes, have been added to the list of top enterprise risks. The Enterprise Risk Management (“ERM”) group has launched a full-scale risk assessment and the top risks will be assessed through three main categories: Strategic, Internal, and External risks.

Enterprise Risk Dashboard

Mr. Parija introduced the proposed Enterprise Risk dashboard to be used for Enterprise Risk’s presentation to the Board. He said the goal is to link the top risks in terms of how they might impact the corporate goals to Strategy goals.

The risk assessment process has been launched and staff will report annually on how the top risks are trending. Enterprise Risk staff has met with EMC members and plans to undertake a variety of cross-function works to assess risks and report to the Board on the results of the risk assessment process in May.

Risk Management Activities

- **Cyber Security**

One of the findings based on the Cyber Security Risk Analysis conducted by Risk Management was that they needed to understand the impact of a Cyber Security event on NYPA’s reputation and public trust and also how they can be better prepared to address

those situations, if it occurs. To that end, Enterprise Risk has launched a project to address those issues; this is expected to be completed in May.

- **Commodity Risks Portfolio Review**

In order to understand the total risks of the Commodity Portfolio that we are dealing with at NYPA, Enterprise Risk is continuing to pursue close relationships with the other business units to create a strategy in Audit. ERM is also working with Finance and Marketing in terms of long-term contract negotiations; and Customer Energy Services to have a better understanding about the risks.

ERM is also developing a set of key risk indicators with Strategy, monitoring metrics to be more aligned with the key performance indicators, so that we can have a clear story for the Board, going forward.

Mr. Soubhagya ended by saying that he was pleased to inform the Board that ER has been successful in recruiting a Senior Director for Enterprise Risk. He will be joining the group in February.

In response to a question from Trustee McKibben, Mr. Parija said, as mentioned by President Quiniones, the Authority's mission is to provide low-cost energy to its customers in order to drive energy productivity in the state of New York. So, even though there is value for energy, the energy that the Authority sells may not be monetized exactly based on the market rates, but the Authority is still providing value to the state of New York through energy production and distribution.

Mr. Lurie added that the first goal is largely internal and financially focused; the second goal is operationally focused; the third goal is designed to capture the value that the Authority provides to its customers in various forms e.g. low-cost energy; carbon reduction or resiliency. Staff is trying to design metrics around those goals.

In response to further questioning from Trustee McKibben, Mr. Lurie agreed that "value" is technically an external measurement.

In response to a question from Trustee Kress, Mr. Parija said there are internal elements to cyber security threats; however the risks are categorized based on the risk sources. ERM's view is that the risk sources for cyber security are primarily external. In response to further questioning from Trustee Kress, Mr. Parija said during the annual risk assessment process the team will be assessing all of the top risks and will examine the benefit of disaggregating Cyber and Physical Security through that process.

In response to a question from Chairman Koelmel, Mr. Parija said other emerging risks will be addressed as part of the risk assessment process and a dashboard reflecting those risks will be provided, going forward.

In response to further questioning from Chairman Koelmel, Mr. Parija said the Authority has undertaken a number of initiatives to address cyber security risks. e.g., Operations has launched some initiatives and IT and OT teams have been working together, building more resilience into the systems and technology aspects of the business. The risk assessment process is a specific project to address public trust and reputational elements so that the Authority can be better prepared to address the potential impact of a cyber event.

In response to a question from Trustee Nicandri, Mr. Parija said ERM has a trained dashboard that portrays a short-view of the risk levels going up, down or remaining stable; If the dashboard shows risk levels going up, ERM will take immediate action.

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

- **As stated previously, early in the year (2015) ice and emergent issues in SENY created a deficit in the Generation Market Readiness measure. Although the Authority did not reach the target of 99.4, this measure improved by the end of the year.**

- *No significant issues in December 2015.*

Transmission Reliability:

- *Scheduled outages impacted this measure; however, the target, as projected, was met by end-of-year 2015.*

Environment, Health & Safety:

Environmental Incidents:

- *One incident in December at the Niagara Project – SPDES outfall, 28 TSS [total suspended solids] at 91 mg/l above permit limit.*

Safety:

- *Recovering from a difficult start in 2015. This measure was significantly below the American Public Power Association's average and below the BLS rate for utilities of 1.10; therefore, the Authority will not recover this measure by end-of-year 2015.*
- *No safety incidents occurred in December; however, two previous injuries became DART incidents due to employees having to undergo surgeries for shoulder injuries in February (slip – B-G) and July (material handling – SENY).*

Technical Compliance:

- *NYPA is working to achieve compliance with the new cyber security standards before the April 1, 2016 enforcement date. Some new requirements may be enforceable in July 2016 and is presently being assessed by staff.*

Budget Portfolio:

- *Significant non-recurring O&M and Capital work execution.*
- *In order to align the budget process and employee performance expectations, Operations will continue with the milestone metrics it has been using to track performance in 2016. Operations will, however, be looking at Cost, Scheduling, and Timing Performance Indices to be piloted in 2016 for implementation in the 2017 budget cycle.*
- *Operations is also raising expectations with a challenge process in 2016 that is intended to demonstrate technical, NPV, Approval-process, resourcing and review (feedback) criteria for all new projects without compromising its ability to introduce innovative proposals, going forward.*

Asset Management:

- *Operations has begun its first quarter 2016 regional outreach at the sites on the Strategic Asset Management Plan with regard to some of the key initiatives – Safety, Security and Workforce Development. Further information regarding these initiatives will be provided, going forward.*

Employee Engagement:

- *Operations have started staffing plans to address T-LEM resources in NNY and transmission.*
- *Started a rotational assignment between ECC, ERM and Plant Operations within the FERC Standards of Conduct rules.*
- *Site involvement with EPRI and other groups – hydro representation in Generation Sector, for example.*
- *Labor – Apprenticeships – more succession issues – meetings underway to address these issues.*
- *Staffing and resourcing the commitments – with unknown regarding the Canals initiative, this will be a key issue.*

President Quiniones added that the Authority is the first generation and transmission owners in the United States that will be seeking the ISO-55000 standard, an international standard on asset management, and commended the team for taking the lead in the utility industry in the United States to attain this standard.

3d. Report of the Chief Financial Officer

Mr. Robert Lurie provided highlights of the Chief Financial Officer's report to the Trustees (Exhibit "3d-A").

Net Income

- *Net income for the year was \$69.3 million, which was \$136.3 million lower than budgeted due to lower hydro production (\$65 million), and lower market energy*

prices (\$145 million), partially offset by lower O&M and other expenses (\$73 million). Lower production resulted from low precipitation and a less than normal winter ice thaw early in the year. Lower O&M and other expenses reflect underspending in programs including Five City Master Plan, Western NY Workforce Development and Customer Energy Solutions.

- *During the month of December, the Authority experienced a net loss of \$5.9 million, which was \$23.1 million worse than the budgeted \$17.2 million net income. These results were due primarily to a lower net margin on sales (\$17.4 million) and a mark-to-market loss on the Authority's investment portfolio (\$2.8 million, higher than anticipated market interest rates). The lower net margin on sales was primarily attributable to significantly lower prices on market sales of hydro energy into the ISO market.*

Mr. Lurie said the Authority's year-end performance was very good and commended staff for the actions taken to ensure that the Authority remain in a positive range, financially. He said as mentioned by President Quiniones in his report, reduction in water flows impacted hydro generation. The collapse in energy prices throughout the state, particularly in upstate New York, resulted in approximately \$145 million in lost revenue from energy sales in the wholesale market. However, the Authority was able to control its operating expenses to bring its income back in line. Overall, given the negative factors that occurred during the year – a testament of the resiliency of the Authority's business – the Authority's financial condition remained strong.

The Authority's debt coverage service ratio was originally expected to be extremely high; however, the Authority exceeded its minimum target level of 2X debt service coverage, and therefore was able to sustain its AA bond rating from all of the rating agencies.

In response to a question from Trustee McKibben, Mr. Lurie said, the Authority took advantage of the lower rates, and, in the fall issued new bonds to refinance old bonds, which process resulted in savings for the Authority.

With regard to the 2016 budget, Mr. Lurie said the efforts that the Authority is making to focus on the way it invest funds – examining the economic returns expected from investments; whether it should delay investments and the associated risks of that decision; the alignment of its investments to its Strategic Plan – will continue to result in positive returns for the Authority in 2016.

In response to comments from Trustee McKibben, Mr. Lurie said the Authority will be watching its costs and the investments planned for the year, and make sure all components of its business are contributing to its overall returns. In addition, all of NYPA’s programs will be review to ensure that they contribute their fair share to providing the cushion necessary for the Authority to withstand the market volatility. The Authority will have to be more disciplined about “cost shifting” in each of its various program areas and make sure that it is disciplined about providing the return necessary to cover risks.

4. Power Allocations and Proceeds

a. Compliance Review – Globe Metallurgical, Inc.

Mr. James Pasquale provided highlights of staff’s recommendation to the Trustees. In response to a question from Trustee Nicandri, Mr. Pasquale said because Globe’s facility was shut for five years, the 100 jobs the company needed to restart the facility was deemed to be newly-created jobs. Chairman Koelmel commended Mr. Pasquale and staff for their efforts in pondering the range of options and considerations on whether to recommend a full versus a pro-rate reduction to the company before their final recommendation to the Board.

RESOLUTION	Moved: A. Picente	Seconded: A. Kress	Adopted: 6/0
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5. **Informational Item: Q1 2016 Energy Industry Update**

Mr. Adam Brudnick, Strategy Project Manager, provided an update on the Energy Industry as follows.

“Introduction and Objectives

This is an ongoing series of quarterly industry updates that will help ensure that the Board and senior staff has the latest trends and information available to them as they deliberate the proper course of action for the Authority. Each year, one presentation will focus on broad trends in the electricity industry and the other three will be deep-dives on specific areas of interest.

This presentation is a recap of the information shared with the Board in December.

Although there have been some developments since that time – turmoil in the stock market, low oil prices, and an extension to solar tax credits – these insights still hold.

There are five mega-trends that are affecting the utility industry. How these trends may affect NYPA in the years to come is discussed below:

1. **Slowing Growth in Electricity Sales**

Growth in electricity sales has been shrinking for decades and is now showing signs of flattening.

The growth rate in centralized generation has been declining since the 1950s; in recent years it has reached a critical juncture.

Electricity sales forecasts made in 2005 through 2014:

- a. *each year the forecasts are revised downward;*
- b. *not only are the actuals well below the forecasts, they have been essentially flat for the past 5 years.*

Aside from sluggish economic growth, two main factors are behind the sales stagnation. Efficiency gains have reduced the amount of energy needed, and the increase self-generation (e.g. solar power and customer-sited back-up generators) let customers access electricity without having to buy it on the market. Analysts did not expect these to spread as quickly as they have, so their forecasts have been high. The impact of those technologies has been so great overall sales of electricity have been flat for the past five years.

In the long term, sales will probably go up – as long as standards of living go up, so will electricity consumption. However, it is not clear when sales will grow or by how much. The assumption is that there won't be significant growth in electricity sales in the near term. The most recent projection sees sales less than 5% over 2010 levels.

NYPA's generation is among the cheapest and cleanest in the world; so while it can weather the storm, it is unlikely it will see significant revenue growth from power sales."

In response to a question from Trustee McKibben, Mr. Brudnick said the current forecast on distributed generation, specifically solar, is basically exponential. The solar tax credit has been extended therefore whatever the Authority is forecasting now will not be a factor. This information will be included in the reports, going forward.

Responding to further questioning from Trustee McKibben, Mr. Brudnick said this report addresses electricity sales in terms of volume. Prices may go up if there are regulatory changes or changes in the price of natural gas; as for demand-based price increase, it is unlikely that the margin will expand greatly.

2. **“Peak Demand**

Energy consumption represents the total amount of electricity used, and peak demand represents the highest amount of power drawn. (the rate at which electricity is consumed)

For the first eight years between 1992 and 2012, peak demand and energy consumption went up hand-in-hand. After the year 2000, they started to diverge. By 2012, peak demand grew by about three times as much as energy consumption on a relative basis. Looking at the past few years, peak demand and energy consumption appears to be getting further apart.

This trend is driven by a number of factors e.g. consumer electronics and increases in energy efficiency, the impact being that consumers are now facing two pressures, affordability and reliability. In New York, the grid has the capacity to supply over 30 GW of power, and consumers typically use only 60% of that capacity during the year. This can result in affordability issues because customers will have to pay for capacity that is sitting idle most of the year. From a reliability perspective, because power plants operate big heavy machines with a lot of inertia, unless you can get them up to speed and back down in perfect sync with demand, you may experience power quality issues such as “brownouts” or “blackouts.”

While this does not pose a risk to NYPA’s business, it does present an opportunity. Through its Customer Services group, the Authority can leverage its exposure to commercial and industrial customers in NYS to begin to address this issue through novel approaches and provide power more affordably and reliably than the current system. It is an area that the Authority will be discussing in its annual strategy offsite meeting and report to the Board at its meeting in March.”

In response to a question from Chairman Koelmel, Mr. Brudnick said peak demand is the maximum demand in any year.

3. “Transmission system

Unless one has a functioning Transmission system one cannot actually get the power from the power plants to the consumers to satisfy their peak demands. This requires investment; however, timing and economics are currently uncertain.

Although NYISO forecasts that the transmission grid in New York requires about \$25B in investment over the next 30 years to meet energy needs, private investment in transmission peaked in 2014 and has been projected to go down at least 3% per year in the near future. The gap between private investment and the investment need creates a potential opportunity for NYPA to step in and invest profitably in transmission. The Authority currently owns approximately one-third of the high-voltage transmission in the state.

Unfortunately, despite the Authority’s size and unique mandate, it is still subject to the same regulatory and business uncertainties holding back private investment – mostly reflected in uncertainties in rate recovery and project timelines.

Therefore, in order to maintain its rating in the State the Authority has adopted a strategy of opportunistic investments coupled with capability development. The Authority’s Smart Generation and Transmission and Asset Management initiatives are tapping the power of data to get more out of its existing infrastructure, and in the last few months, has placed a bid to upgrade the transmission grid and relieve congestion in Western New York.

Going forward, the Authority will continue to develop its capabilities and look for opportunities to invest profitably in transmission, but until the regulatory roadblocks

begin to shift it does not expect to see many near-term opportunities in transmission.”

In response to a question from Chairman Koelmel, Mr. Brudnick said there are opportunities to work with other players in the industry to reform the regulatory roadblocks, but it is unlikely to change in the next several months. President Quiniones said that transmission is very difficult to site because it crosses through multiple jurisdiction, and that usually spur a lot of local opposition.

Mr. Lurie added that, on the other side, those investments would be financially attractive if there were more certainty about being able to get through the regulatory process. FERC has tried to encourage new investments in transmission by providing reasonable healthy returns on capital that is invested, but the problem is that, due to the uncertainty, although there are a lot of players interested in putting capital in, until those barriers become a clearer, that capital is going to stay on the sidelines.

“The growth in electric sales is relatively flat and being driven by improvements in efficiency and growing self-generation. We are experiencing a larger gap between peak demand and energy consumption, which is creating lower rates of utilization and putting stress on the grid that increases the risk of power quality issues. Investing in the transmission grid can help mitigate those issues, but we are in an unfavorable regulatory climate. Recent technology developments are opening another avenue to address these issues.

4. Energy storage

Energy storage is rapidly becoming economically attractive.

Electricity is typically a ‘use-it-or-lose-it’ commodity. Unlike oil, you can’t put it in a big strategic reserve for use on a rainy day. Either that electron is put to work lighting a room or cooling food, or it’s immediately dissipated as heat. Electricity

storage, which can come in the form of many different technologies, promises to change that. By letting customers buy power when it's cheap and use that cheap power later rather than buying expensive power, it lets customers conduct a sort of intra-day arbitrage

There are certain customers who would find it profitable today to engage in electrical storage. What makes the difference between those who would profit and those who would not is their pattern of energy usage and the daily swings in electricity costs. Because NYC is so capacity constrained, there are large price swings for large customers – which is why most of the profitable applications are in NYC. What is important is that investors expect the costs of storage to drop by 10% per year; so, as that cost comes down customers will find it profitable to store electricity and lower their peak energy usage.

As storage penetrates the market, it presents both opportunities and risks for NYPA. On the opportunity side, the Authority can help its customers take advantage of this technology to boost their resiliency and lower their electricity as well as reduce the peak stress on the grid. However, from a risk perspective, increased storage may also lower the value of NYPA's "peakier" plants. It will be some time before storage becomes large enough to have an impact on those plants; however, it is a longer term risk NYPA should be aware of.

Over the coming months NYPA be engaging with storage and other technologies that help manage peak demand (including data analytics and efficiency upgrades) to determine where NYPA should be investing and how it can mitigate the risks these new technologies pose."

In response to a question from Chairman Koelmel, Mr. Brudnick said with the concept of electricity storage, consumers would buy energy when it's cheap and use it when it's expensive,

rather than paying for it when it is expensive. In terms of storage, there are different applications – some are batteries, or pumped-storage such as the Authority’s facility at B-G. Typically, when looking at the new trends in storage we are referring to customer-sited storage based on batteries.

President Quiniones added that the current technology leader in this phase is Lithium Ion. However, the question has been asked whether Lithium Ion is the one that will be scalable for use in the grid since there are other chemical technologies that are being looked into including liquid chemicals that can store vast amounts of electricity. Mr. Lurie also added that as peak demand continue to grow, the system could get less efficient; and a lot of the capacity needed to satisfy peak demand is not used most of the time. Therefore, instead of building more capacity in the system to handle the growing peak demand, one way to deal with it is to use technologies like storage to store that electrical power until it is needed during peak demand instead of creating more wires, etc. to move the power from several sources. If this becomes more economic and the cost of battery comes down, the Authority will have an opportunity, not only to make the system more efficient, but also to lower the cost for customers of satisfying their peak power needs.

President Quiniones also added that, at the present time, the Authority is the largest storage provider in NYS with the Lewiston-pumped generating plant which is part of the Niagara Power Project that is a large storage facility and Blenheim-Gilboa, with almost 1200 MW of pumped-storage.

In response to a question from Trustee Nicandri, Mr. Brudnick said the \$25 billion over the 30 years for T-LEM investments, as previously mentioned, is to ensure that the grid will still work for the next century. New York City has only a couple of lines coming into it; the congestion cost is estimated to be about \$9 billion of waste and this is an opportunity for NYPA to invest in to improve the grid.

5. **Investment trends**

Investment trends suggest that most of the future growth will be downstream. Most of the profit is in generation and regulated utilities and transmission/distribution. Retail and services, which, today, are not very large industries, are expected to grow significantly over the next few years and address many of the problems facing the utility industry in terms of cleanliness, affordability, and reliability.

Generation: flat demand and low prices are limiting the upside, but NYPA's generation has some of the lowest costs in the world; so, while the Authority will face some difficulty, there is no risk of it being forced out of the market.

Transmission: this is helpful for addressing the issues that the Authority faces and capital is ready for replacement; however, regulatory environment means the Authority has to take an opportunistic stance and invest where it can.

Retail and services: this is where innovation is happening, and storage is just one of the technologies about to come into its own. The ability of these customer-sited models to help ensure cheap, reliable, and clean power has been part of the conversation for a while, but it is exciting to see it come to fruition. NYPA's existing initiatives, such as the Customer Services group and New York Energy Manager, provide a strong base to build on.

Overall, the Authority is in a strong position to navigate these changing trends. NYPA's financial and operational positions give it the freedom and security to manage the shifts in the industry. The Authority is in a unique position to maintain what it has; not only does it have the capability to invest in high growth areas, but it's part of its core mission to provide New Yorkers with cheap, reliable, and clean

electricity. Going forward, the Authority plans to continue to evaluate opportunities downstream while maintaining its core business in the generation and transmission space.

In summary, the Authority is well-positioned in the market. NYPA has cheap generation which protects it from price shocks and it owns about one-third of the transmission space. Downstream, the Authority’s Customer Solutions group and the New York Energy Manager initiatives provide a strong base to build on, should the Authority decide to invest further in that space. Technologies are offering new solutions to match supply and demand and they provide both opportunities and risks to the Authority’s business model. These will be discussed at the strategy meeting in March and reported to the Board at the May meeting.”

RESOLUTION	Moved: N/A	Seconded: N/A	Adopted:
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6. Informational Item: New Corporate Performance Metrics

Mr. Doug McMahon, Vice President of Strategy, provided highlights of the new Corporate Performance Metrics and current efforts to revamp the Authority’s corporate performance metric regime.

“Mr. McMahon said quantifying success for an organization such as NYPA is not as easy as it may first appear:

- NYPA is a non-profit organization which means that typical financial metrics such as profit and increase in share price are not the most appropriate measures of success;**
- NYPA has two arms to its generation sales business: the first, contract sales, is driven by the need to provide low-cost energy to customers and the second,**

merchant sales, is driven by market energy prices – defining a meaningful revenue target is also fraught with difficulty;

- *NYPA’s business spans the energy value chain (generation, transmission and customer), each with different, and sometimes conflicting, objectives.*

This makes it challenging for NYPA to develop a set of corporate metrics that addresses potentially conflicting goals (for example, low-cost and financial strength)

NYPA has a solid set of well-defined corporate metrics that staff already report on to the Executive Management Committee (“EMC”) and Trustees. However, with the implementation of its 2020 strategic vision / plan and rapidly changing market place throwing out new challenges for NYPA to manage, the current set of corporate metrics may no longer be 100% “fit for purpose.”

The following is a list of good practice characteristics that staff expects the corporate metrics to exhibit:

- 1. Metrics should be output focused, demonstrating the value that NYPA delivers to both its customers and the broader state of New York;*
- 2. Metrics should influence business decisions in a timely manner;*
- 3. Metrics should utilize the increasing amount of business data that is available;*
- 4. Metrics should provide a balanced view on business performance – for example, weighing financial performance vs the value NYPA deliver to its customers and the State;*
- 5. Metrics should promote transparency and accountability across the business;*
and

6. Metrics should be tightly aligned to NYPA's strategic vision and goals.

The Authority's corporate metrics will help to ensure that every person at NYPA is working towards the same vision and set of goals, and that every NYPA employee clearly understands the importance of the role they are playing in the delivery of its business strategy.

NYPA's corporate metrics provide an integral link between its strategic vision / goals and the strategic effectiveness of its business units / employees.

During the next phase of the corporate metrics project, staff will be working with the business units to develop level 2 (business unit level) metrics, and throughout the remainder of year will work with HR and the rest of the business units to cascade these metrics downward to individual employees' annual objectives, as appropriate.

Corporate Goals

NYPA has three corporate goals in support of its 2020 Strategic Plan. These goals will explain what the Authority needs to focus on in order to successfully deliver its Strategic Plan.

The first, Financial Effectiveness, focuses on maximizing the amount of financial capacity NYPA has at its disposal to make the investments required to achieve its strategic ambition. This metric is about giving the Authority the means (or tools) to run a healthy, impactful business.

The second, Operational Effectiveness, focuses on ensuring that NYPA is running a lean operation without compromising risk.

The importance of these first two goals to the ongoing health of the Authority is only likely to increase as low gas prices continue to impact the Authority's net income margins.

The final goal, Value from Energy, focuses more on the broader value that the Authority's customers receive from the energy it produces and services it delivers.

Focusing on one of these goals at the expense of the others will not result in the realization of NYPA's strategic vision. Therefore, each of these goals will have to be delivered collectively and in a balanced manner if the Authority's strategic vision is to be realized.

In order to achieve this, staff has taken the existing set of corporate metrics and attempted to improve on them. Staff is proposing set of nine corporate metrics that, if developed further in conjunction with the business and measured appropriately, will best define success for NYPA.

Five of these metrics directly align to NYPA's three corporate goals.

- 1. Financial Effectiveness – Economic Value Added. This is a measure of financial performance based on the concept that all capital has a cost and that earning more than the cost of capital (in this case the weighted average cost of capital) creates value that can be utilized by the Authority in other ways. This concept has been rolled-out at the business unit level over the last few months as part of the financial acumen training project. It will now be rolled-up into a corporate level metric and used to measure the overall healthiness of the Authority's capital investment project portfolio.***
- 2. Operational Effectiveness – staff is proposing three metrics:***

- i. Non Fuel O&M cost per mwh – this is a measure of operating efficiency as it relates to NYPA’s production of electricity, and is essentially a measure of how lean NYPA’S operations are.*
- ii. Commercial Availability – This is similar to the existing metric NYPA has for generation market readiness and transmission reliability – but in this case, NYPA is exploring whether it can add a weighting component to the metric, based on the “value” of energy during periods where it is unable to serve the market place. At various times in the year (winter and summer) and even at times during the day (for example when we head home from work), the value of energy is typically higher. Therefore, the impact on the State (and to NYPA) of not being able to serve the market at these times is also higher. If NYPA can define this metric correctly it will weight these periods of higher value appropriately, therefore, providing NYPA with a more realistic view on the impact of planned and unplanned outages.*
- iii. Load Factor Optimization – this is a slightly more complicated metric that looks to measure the economic efficiency of NYPA’s electricity generation. It is an expression of how much energy is used in a time period by NYPA’s customers, versus how much energy would have been used if the power had been left on during a period of peak demand. This ratio of consumption to peak demand (expressed as a percentage) is an important energy affordability indicator. The more NYPA is able to work with its customers to suppress/avoid using energy during peak periods, the lower the cost of each unit of energy that flows through the system. In this case, the higher the load factor percentage, the more affordable energy is to NYPA’s customers.*

3. Value from Energy – the value of carbon reduction. This measure is the value of avoided, created, carbon based on NYPA’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. In essence, this looks to exhibit to what extent NYPA is contributing to some of the State’s clean energy and carbon reduction targets (e.g. CPP and 50 by 30).

There are four more traditional metrics that do not specifically align to NYPA’s strategic goals but are no less important to the success of the Authority. Staff will be working with the various subject matter experts across the Authority for each of these metrics to see if they can improve on the existing measures that are in place.

The combination of these four metrics and the five previously indicated will work together to provide a balanced perspective on NYPA’s performance.

- ***Balancing the need to implement projects that provide a return to NYPA vs. the cleanliness, reliability and affordability benefits that these projects deliver to its customers / the State.***
- ***Balancing the need to run a lean operation versus the need to manage operational risk.***
- ***Balancing NYPA’s need to provide low-cost energy and be financially strong.***

The metrics are work in progress and staff has recently started to reach out to the business units for support. Metric calculations and targets will be set through a series of workshops with the business units over the forthcoming weeks and staff will continue to revise the metrics until they have set that best serve the needs of the Authority.

In parallel, staff also need to start developing a tier two / business unit metrics and work with Enterprise Risk to integrate key risk indicators into the corporate metric regime.

The corporate metric regime is only as strong as the employees understanding and belief in them. The more employees believe that the business has put in place the right set of corporate metrics, and the more employees clearly understand the role each play in impacting performance against the metrics, the more successful the business will be and more likely NYPA will achieve its 2020 Strategic Plan.

Staff plans to start reporting on the revised set of metrics at the end of Q1 2016.”

In response to a question from Chairman Koelmel, Mr. McMahon said the team will need to spend some time understanding what are the most appropriate targets to be set against the new metrics because firstly, staff have not, historically, collected data on some of the areas; and secondly, some of the things that staff is looking to measure are very new for NYPA. There are a lot of overlaps between the current set of corporate metrics and what staff is proposing. Therefore, staff will run the two sets of metrics in parallel for a few months during the presentations to the Board.

President Quiniones added that the goal is that by March, at the annual meeting, staff will present a parallel set of metrics – the scorecard previously used and the new metrics. In May, staff plans to transition to the new format of scorecards. Also in May, the Board will be given a peak preview on the business unit level metrics. This will not be a part of the reporting at the Board meetings, but is just to inform the Board that the Authority has a corporate level and a business unit level metrics. In March, the Board will be provided a parallel presentation so that members will understand exactly where the Authority is and where it is moving to.

In response to further questioning from Chairman Koelmel, Mr. Lurie said with new metrics the Authority is attempting to align the business with the strategic plan and goals, and to better describe the effectiveness of its current business with the new measures, e.g., the commercial availability metric. The Authority is also trying to better refine the availability of its plants during the period when it is needed the most by the State, and capture it in a metric. The Authority is also trying to improve the way it measures its core business, and capture the progress made toward its strategic plan goals. In addition, new metrics have been added to better align the Authority's financial capacity to realize its strategic plan, value being provided to customers, and the ability to match the supply and demand, particularly peak and off-peak times.

In response to still further questioning from Chairman Koelmel, President Quiniones said the new metrics is more aligned with, and allows for, direct visibility to achieving the specific strategic initiatives that the Authority has set forth in its strategy 20/20 plan. Mr. Lurie added that it is also in alignment with state and national policy goals as well as carbon reduction goals, and is therefore a major step for the Authority.

In response to another question from Chairman Koelmel, Mr. McMahon the Authority is creating its own metrics as well as leveraging other industry metrics and performance criteria to allow the Authority to better compare itself or be compared to. Staff has also looked to other industries for examples, particularly in the operational effectiveness area, that the Authority could draw on to come up with its metrics.

Mr. Lurie added that, in addition, the Economic Value Added metric enables the Authority to provide some financial comparability to other organizations that have different levels of an asset base. The commercial Availability Metric, for example, is being used by other utilities and non-utility companies because it better reflects the market place. The metrics regarding peak demand and carbon reduction are more emerging metrics in the industry.

In response to question from Trustee Kress, Mr. McMahon said staff collaborated with the various business units in developing the set of metrics presented to the Trustees today. The next stage will be to sketch out a business unit-level version of the metrics by identifying to what extent the business unit can contribute to the metrics through the activities that they undertake. To that end, staff will be conducting a series of workshops with the business units within the next couple of months in parallel to setting targets and measuring the top-tier metrics in order to report on both levels at the May meeting.

Mr. Lurie added that at the March meeting, staff plans to introduce the concepts for the “second-level” metrics without the numbers or targets attached to them. At that time, staff will be able to describe how those metrics align to the corporate-level metrics and then present the full regime to the Board at the May meeting. He continued that the need for alignment of the next level metrics will allow employees to understand how their departments contribute to the corporate metrics; and also a third level that allows individuals to understand how they, personally, or their work function contributes to the departmental and the corporate metrics is the goal for this year.

In response to a comment from Chairman Koelmel, President Quiniones said although this is an opportunity to engage the broader workforce, the metrics has to be a combination of “bottom-up” as well as “top down.” It starts at the corporate level, next, the business unit level, and then it will be embedded in the annual performance plans and development plans for the Authority’s employees.

RESOLUTION	Moved: N/A	Seconded: N/A	Adopted:
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7. Motion to Conduct an Executive Session

RESOLUTION	Moved: T. Flynn	Seconded: A. Kress	Adopted: 6/0
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8. **Motion to Conduct an Executive Session**

RESOLUTION	Moved: T. Flynn	Seconded: A. Kress	Adopted: 6/0
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10. **Next Meeting**

RESOLUTION	Moved: T. Flynn	Seconded: A. Kress	Adopted: 6/0
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