MINUTES OF THE ONE HUNDRED SECOND MEETING OF THE PROGRAM PLANNING COMMITTEE HELD ON APRIL 17, 2018

Pursuant to a Notice and Agenda dated April 6, 2018, a copy of which is annexed hereto, the one hundred second (102nd) meeting of the Program Planning Committee ("Committee") of the NEW YORK STATE ENERGY RESEARCH AND DEVELOPMENT AUTHORITY ("Authority") was convened at 12:00 p.m. on Tuesday, April 17, 2018, at the office of the New York State Dormitory Authority ("DASNY"), One Penn Plaza, 52nd Floor, New York, New York, and in the Authority's Board Room at 17 Columbia Circle, Albany, New York.

The following Members of the Committee were present:

Mark Willis, Committee Chair Richard Kauffman. Chair of the Authority Ken Daly Kate Fish Jay Koh John McAvoy Gil Quiniones

Also present in either New York City or Albany were: Alicia Barton, President and CEO of NYSERDA; Janet Joseph, Senior Vice President for Strategy and Market Development; Jeffrey J. Pitkin, Treasurer; Noah Shaw, General Counsel; Valerie S. Milonovich, Senior Counsel and Secretary to the Committee; and various other members of the Authority staff.

Mr. Willis called the meeting to order, noted the presence of a quorum, and stated that a Notice of the meeting was mailed to Committee Members and to the press on April 6, 2018.

Approval of January 23, 2018 Minutes

The first agenda item concerned the approval of the minutes of the 101st meeting of the Committee held on January 23, 2018. Upon motion duly made and seconded, and by unanimous voice vote, the minutes of the 101st meeting of the Committee were approved.

Annual Review of the Program Planning Committee Charter

As presented by Noah Shaw, Secretary to the Board and General Counsel to the Authority, the Members adopted a resolution recommending to the full Board the adoption of the Program Planning Committee Charter ("Charter"). This item is the result of a periodic review in accordance with New York State Authority Budget Office Guidance and pursuant to the Public Authorities Accountability Act of 2005. Each of the Authority's Committees adopted Charters setting forth the responsibilities and each Committee is responsible for periodically reviewing their respective Charters.

Based on the report and discussion of the Charter of the Program Planning Committee, as presented, upon motion duly made and seconded, and by unanimous voice vote, the Committee recommended that the full Board adopt the resolution.

Resolution

RESOLVED, that amendments to the Charter of the Authority's Program Planning Committee as presented to the Members for consideration at this meeting, with such non-substantive, editorial changes and grammatical changes as the President and Chief Executive Officer, in his discretion, may deem necessary or appropriate, are recommended for adoption and approval by the Board.

2018 Program Priorities of the Authority

The Committee received a presentation on the Authority's 2018 program priorities, led by Alicia Barton, President and CEO and Janet Joseph, Senior Vice President for Strategy and Market Development. Ms. Barton provided an overview of the Authority's 2018 program priorities and initiatives, as well as an update on the process used to develop the goals and priorities presented. In describing the Authority's clean energy and energy innovation agenda as ambitious, she stressed the need for focus and internal alignment to best prioritize the plethora of initiatives. Ms. Barton stated that the goal is to ensure that the Authority's efforts are hitting its targets, despite a very broad scope of authority and responsibility.

Ms. Barton stated that, building off the Governor's leadership, the Authority undertook a strategic goal and priority-setting exercise, similar to that undertaken in its three-year Strategic Outlook. This is to ensure that all program areas are aligned with and communications occur among the various program teams, with Authority management, and in accordance with the Board's direction, all while being accountable to the public. The process was an exercise in identifying the priority items, recognizing that those priorities can change over the course of a year due to external developments and the rapid transformation of energy markets. Progress will be reviewed on a quarterly basis to ensure the Authority is closely tracking toward its targets and is demonstrating progress. If not, targets will be reassessed and readjusted. Overall, the philosophy is toward the long-term goal of self-sustaining clean energy and remaining agile as an organization.

Mr. Kauffman reiterated that, despite the number of mandates directed upon the Authority, the philosophy remains that it is the policy that drives the mandates, resulting in a systemic approach to integrative policies that will build a new electric grid. He described this as a critical change in the strategy of the Authority.

Ms. Barton presented recent activities regarding land-based renewable energy resources and the results of the most recent competitive solicitation that reflects a heartening response from the market. She reported that this set of awards was greater than the last six Authority solicitations combined in this program area which is a sea change for these efforts. In addition, good insight was gained from the different solicitation offerings. Mr. Quiniones stated that the New York Power Authority shares the enthusiasm and is continuing the process of solidifying the new projects. Mr. McAvoy added that the results were very impressive and that this bodes well for the future and the ability to attract developers. In response to Mr. Daly's observation that the resultant lower prices represent an important signal, Ms. Barton stated that the increased volume and lower prices, together, mirror national trends. She added that the Authority is working toward its next solicitation and she believes that many viable projects remain in the market.

Ms. Barton presented information on the Authority's off-shore wind activities, including a White Paper that presents the options for off-shore wind resource procurement. The White Paper is undergoing the public comment process and the first competitive procurement is slated to be undertaken by the end of 2018.

Mr. McAvoy stated that this type of procurement presents different issues to developers in that there is higher risk, among other issues, and that the developer aspects are very important and should be addressed. Mr. Koh added that operations and maintenance issues are also different for these procurements.

Mr. Kauffman highlighted the Authority's work with developers in the market, specifically in gaining market intelligence. Ms. Barton spoke about the insights gleaned from the technical and industry working groups, the validation of the policy analysis, as well as plans for ongoing technical working groups. Mr. McAvoy stated that he believed this to be a smart approach.

Mr. Daly pointed out and Ms. Barton provided additional details on recent announcements regarding the early stages of federal efforts to further advance future lease areas.

In response to an inquiry from Ms. Fish regarding a study about the impact of climate change on ocean currents relative to the State's consideration of the siting of offshore wind facilities, Ms. Barton stated that the working group assessing commercial and recreational fishing is well aware of the dynamic, that data is limited. She welcomed any additional information of which Ms. Fish may be aware to further enhance the Authority's understanding.

Ms. Barton provided an update on NY-Sun Program efforts which include revisions to the incentive structure and other changes as the solar market transitions from traditional net metering to the value of distributed energy resource incentive structures. She described the role of the NY-Sun Program as carrying through on this transition and improving the ability of developers to achieve financing, particularly given the strong pipeline of projects. Other changes in the program redesign include the timing of incentive payments, a photovoltaic and storage initiative, driving down the soft costs, continued work with local governments and the launch of a low-to-moderate income initiative entitled the "Solar for All Program".

In response to an inquiry by Mr. Koh regarding any potential impact of federal solar tariffs, Ms. Barton stated that the Authority has not seen the impact thus far, as many developers prepurchased panels, citing one example of an entity of which is aware that purchased a two-and-ahalf-year supply of panels. Mr. McAvoy stated that Consolidated Edison does not anticipate seeing any impact during 2018, rather any impact is likely occur in the six-to-twelve month timeframe.

Ms. Barton continued with an update on the technology and business innovation portfolio, which is designed to target specific areas and to evaluate different technologies. Key areas to target include advanced buildings and the next generation of heating, ventilation and air conditioning (HVAC). Smart grid efforts are also expanding from identification and advancement of technologies to increasing market penetration with mechanisms that make technology more applicable in real world situations.

Ms. Barton also described a recent application in response to a U.S. Department of Energy competitive solicitation for an Offshore Wind Research Consortium for which the Authority is partnering with a number of entities, including Stony Brook, Brookhaven National Laboratory, other industry leaders such as the Carbon Trust. She also acknowledged the support of Mr. Daly in that process. Mr. Koh stated that this presents an interesting partnership opportunity to work with the Carbon Trust and to take advantage of the lessons learned from previous efforts. Ms.

Barton agreed and is enthusiastic about the public-private partnership and the potential to achieve accelerated cost reduction goals.

Ms. Barton presented advanced transportation efforts that include a comprehensive emissions reduction strategy and the expectation of significant activity resulting from the forthcoming Volkswagen settlement, as the Authority deploys funds in this area.

In response to an inquiry by Mr. McAvoy regarding the role of the Authority, Ms. Barton clarified that, although the Authority, and the Departments of Environmental Conservation (DEC) and Transportation (DOT) are equal partners, the DEC will play the lead role regarding the emission reduction strategy. John Williams, Director of Policy and Regulatory Affairs, described this relationship as a ten-year partnership through which opportunities for emission reductions will be identified and a strategy for implementation will be developed.

Mr. Quiniones added that NYPA will also be installing electric vehicle infrastructure and that Consolidated Edison, NYPA, the Authority, in coordination with the Electric Power Research Institute (EPRI), will also be assessing and working toward effectuating efficient electrification with the State.

Ms. Barton concluded this portion of the presentation with an update to the multi-year NY Prize effort.

Ms. Joseph presented information on the market development portfolio and the delivery of the Authority's energy efficiency outcomes, with particular focus on a new State energy efficiency goal for 2025 that is under development. The Authority's energy efficiency efforts have two primary areas of focus: transforming energy efficiency markets and developing ways to make broad-based structural changes (such as through improving appliance codes and standards). She also described the Authority's efforts for improving building codes, considered to be the most efficient mechanism for improving building efficiency. The Authority seeks to increase the number of tools available to ensure compliance and to allow communities to achieve savings beyond those required by the current code. In support, Ms. Joseph cited efforts undertaken in a collaboration between New York City and the Authority.

Ms. Joseph stated that the Authority is also focused on opportunities to develop advanced efficiency solutions in buildings, by undertaking the both the typical energy efficiency actions and by also by developing advanced technologies to use buildings as electric grid assets. Other near-term priorities include a "Pay-for-Performance" pilot in collaboration with Consolidated Edison and National Grid which involves new business models to advance energy service agreement constructs. Reducing the soft costs of energy efficiency also remains a focus.

Additional priority areas presented by Ms. Joseph include Retrofit NY, which has shown a promising group of proposals to scale energy efficiency for the affordable housing sector; Real Time Energy Management efforts that provide a significant opportunity area in advanced sensors and analytics; and the "Pathway to Net-Zero Buildings Strategy" which is a priority area for the State that will begin in the new construction sector before expanding to additional building types.

Priorities in the industrial and commercial area will focus on moving efforts from pilots to larger-scale market impact, as the pilots are showing good economic return. The Authority will also launch the "Buildings of Excellence Program" focusing on the multi-family sector. The Clean Energy Communities Program has about 300 interested communities interested in using pursuing high-impact efficiency measures. The clean energy workforce development area is a priority as businesses continue to struggle to find qualified talent, which presents an opportunity to continue to invest in the talent pipeline and internship program through partnerships with entities such as educational institutions and labor unions. Low-to-moderate programs remain a high priority for the Authority and a Healthy Homes Pilot is being developed.

In response to inquiries by Ms. Fish regarding additional outreach and training for building inspectors and the potential for tapping financial institutions for better financing rates, Ms. Joseph responded by stating that additional training for building inspectors is absolutely being pursued. On the issue of the financing rates, Mr. Pitkin responded by stating that the State has been

endeavoring to work at the national level on this issue, but it is proving very difficult due to the requirements of financial institutions.

In response to an inquiry by Mr. Koh regarding whether resiliency in design is being considered so as to be most prudent with ratepayer funds, Ms. Joseph, citing specific program examples, stated that the degree to which resiliency is included varies depending on the lessons learned from Superstorm Sandy and Authority Staff continues to examine emerging best practices. Ms. Barton expressed appreciation for the comments and questions and stated that the process toward a more comprehensive approach in this regard has begun.

Mr. Daly suggested that consideration be given to designing financial mechanisms to price the value of resiliency. Ms. Barton stated that the Authority has been examining similar concepts, yet a scouring of any existing national models has not been fruitful. Mr. Koh added that some financial rating agencies have publicly stated their intent to begin accounting for climate change activity. In response to Mr. Daly's suggestion, Mr. Kauffman suggested that the State and the utilities might work together to better model the costs incurred by certain climate activity. Ms. Barton added that microgrids with associated rate structures might present an opportunity to further flesh out potential costs.

Ms. Joseph concluded this portion of the presentation by stating that the Energy Storage Roadmap will be completed this spring, as will a combined solar and storage initiative.

Development of the Authority's Strategic Outlook

Ms. Barton described proposed process changes for the development of the Authority's Strategic Outlook, which serves as a reference document for internal and external audiences. The intention is to create greater alignment with its purpose as a strategic document by engaging the Committee earlier in the process and balancing the contents by including deeper discussions of select topics, along with descriptions of the breadth of the Authority's overall portfolio.

Mr. Willis described the process changes as a good step forward that will allow the Committee to be more involved by providing additional input and focus while also leveraging the expertise of the Committee Members.

Mr. McAvoy also expressed support but cautioned about the need for restraint, so as to be supportive while not overly directing the content.

Mr. Koh believes that this new approach will be beneficial in helping to cross-walk programmatic endeavors with issues of resourcing and the budget approval process.

Mr. Daly complimented Ms. Barton on the process used to develop the Authority's 2018 priorities.

Other Business

Mr. Willis indicated that the last item on the agenda was other business. There being no additional business to consider, upon motion duly made and seconded, and by unanimous voice vote, the meeting was adjourned.

Respectfully submitted,

Valerie A. Milononich

Valerie S. Milonovich Secretary to the Program Planning Committee