

MINUTES OF THE ONE HUNDRED NINETY-EIGHTH MEETING OF THE  
PROGRAM PLANNING COMMITTEE  
HELD ON APRIL 27, 2017

Pursuant to a Notice and Agenda dated March 30, 2017, a copy of which is annexed hereto, the ninety-eighth (98<sup>th</sup>) 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 Thursday, April 27, 2017, at the Authority’s New York City Office located at 1359 Broadway, 19<sup>th</sup> 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
- Sherburne Abbott
- Charles “Chuck” Bell
- Ken Daly
- Jay Koh
- John McAvoy
- Gil Quiniones
- Elizabeth W. Thorndike, Ph. D

Also present in either New York City or Albany were: John B. Rhodes, President and CEO of NYSERDA; Janet Joseph, Vice President for Innovation and Strategy; Jeffrey J. Pitkin, Treasurer; Noah Shaw, General Counsel; Kevin Kelly, Director, Operational Transformation and Lean; 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 on March 30, 2017 and to the press on March 31, 2017.

### **Approval of January 24, 2017 Minutes**

The first agenda item concerned the approval of the minutes of the 97<sup>th</sup> meeting of the Committee held on January 24, 2017. Upon motion duly made and seconded, and by unanimous voice vote, the minutes of the 97<sup>th</sup> meeting of the Committee were approved.

### **Amendments to the Program Planning Committee Charter**

As presented by Noah Shaw, Secretary to the Board and General Counsel to the Authority, the Members were requested to adopt a resolution recommending to the full Board the adoption of amendments to the Program Planning Committee Charter (“Charter”) to more appropriately reflect the proper name of the Authority’s Strategic Program Plan, as well as to more accurately reflect the Authority’s program area portfolios. These changes are 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 regarding amendments to 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.

## **Presentation on Energy Storage Program Efforts**

A presentation was provided by Jason Doling, Program Manager for Energy Storage, on the Authority's recent energy storage market development activities. Mr. Doling presented recent activities and advancements with regard to energy storage technologies and the state of the global market for these technologies. He also provided statistics regarding the decrease in costs for these technologies as the market has continued to develop. Information was provided regarding the benefits of energy storage technologies, including ratepayer savings, compatibility with renewable energy resources, and economic growth. Mr. Doling also presented specific information on activities being undertaken by the Authority under the Clean Energy Fund which include technology and product development activities; activities targeted toward the reduction of the soft costs associated with these efforts; value stacking pilot programs that strive to reduce electricity peak demand; efforts geared toward reducing greenhouse gases; and the integration of renewable technologies, such as photovoltaics. Mr. Doling also described a forthcoming Energy Storage Scoping Study.

In response to a clarifying inquiry from Mr. Kauffman, Mr. Doling confirmed that the differences in costs and payback timeframes are primarily attributable to balance-of-system and other soft costs, providing additional opportunities for market interventions.

With regard to information provided on employment and global revenue projections in this technology area, Mr. Doling clarified for Mr. Willis that these projections represent the full value chain, including: research, start-up companies developing components; manufacturers; system integrators; and other efforts that promote deployment into the market.

In response to a discussion regarding the issue of electricity load growth and extreme weather conditions stemming from a clarifying inquiry from Mr. Koh, Mr. McAvoy provided information from the utility perspective. He described the increase in frequency and effects of hot summer days and the ensuing impacts on electricity load impacts. Mr. Daly added that these situations tend to be less pronounced in the Upstate New York area, with the exception of the higher growth areas of Malta and the Buffalo region, but added that energy efficiency has successfully mitigated some of the effects.

Mr. Kauffman stated that the effects of energy efficiency may have a larger impact on peak load than the increases in summer temperatures, adding that this has implications for the overall shape of and investments in the electricity generation fleet as the State moves toward a 50% renewable scenario. Investing in back-up fossil generation that seldom runs can be mitigated when the peaks of the electricity load are no longer as frequent or great, particularly when coupled with the addition of renewable energy resources on the overall system.

Mr. McAvoy stated that while the State's utilities are generally not adding supply capacity, the effects of local peaks and the integrated system peak on the transmission and distribution system capacity does have to be addressed. However, he pointed out that this new paradigm referenced by Mr. Kauffman has likely slowed down the retirement of certain electric generating units that may have retired by now under other circumstances.

In response to clarifying inquiries by Mr. Willis and Mr. Koh, Mr. McAvoy added that the locational aspects of siting new storage capacity is very important in achieving the best benefits for both, the system and locational peaks, which often occur at different times of the day.

In response to an inquiry by Mr. Kauffman, Mr. McAvoy stated that the Consolidated Edison Company of New York remains committed to continuing its work with the Authority and others on energy storage efforts. The Company also remains committed to its work with the Fire Department of New York in pursuing additional rounds of battery safety testing with NYSERDA, adding that all lithium-ion storage projects are installed externally (or, outside) at this time. He also stated that Consolidated Edison has four demonstration projects currently underway that incorporate battery storage with varying approaches in evaluating the technical aspects and the business model of storage efforts.

Mr. Daly stated that the information presented is consistent with the approach being taken by National Grid, which is three-pronged: (1) to foster customer aggregation solutions as a means of addressing load pockets; (2) to look beyond traditional transmission and distribution solutions by adding batteries as a means to displace building additional lines; and (3) by investigating opportunities to pair large-scale renewable projects with battery storage, such as the efforts

underway in California and New Zealand. Mr. Daly added that employing battery storage as a solution for power outages could allay much customer angst during short-term outages.

In response to an inquiry by Mr. Willis regarding the type of equipment being installed by customers, Mr. McAvoy stated that all types of equipment installations are currently being examined. However, installations that occur inside buildings are not a near-term proposition, particularly for the New York City area, where all current installations are in outside locations, with a minimum of 10 feet from anything flammable. Mr. McAvoy suggested that an attractive niche would be to match this technology with renewable resources, citing the thermal storage installation at the Google Building as a good example. Mr. Daly stated that there are currently 27 non-wires alternative projects underway in the National Grid territory and would like to integrate battery storage with some of these projects.

Mr. Quiniones described testing efforts pairing energy storage technologies with photovoltaics that is underway between NYPA, the utilities, and the Authority at SUNY New Paltz, which could be designated a facility of refuge during power outages. A similar approach using smart inverters and controllers is being implemented at Queens College, which is designated as a facility of refuge.

In response to an inquiry by Mr. Willis as to how the Authority and the New York Green Bank are encouraging markets investments in this area, Mr. Kauffman stated that price signals are key in determining the locations where these solutions should be deployed. He added that activity would also be encouraged by the reduction of soft costs and by designing the appropriate financial incentives for utilities that capture the stream of value that can be shared between the storage developers and customers, while addressing the issue of utility compensation.

In response to a request by Mr. Bell, Mr. Doling provided additional information with regard to vehicular energy storage efforts that focus on fast charging and the relationship of fast charging to energy peaks. Mr. McAvoy added that Consolidated Edison is pursuing a REV Demo regarding incentives for EV charging especially night charging to determine if there is sufficient interest and to gain insight into managing customer behavior in beneficial ways.

Mr. Quiniones offered information on a recently announced Metropolitan Transit Authority (MTA) pilot program with Consolidated Edison targeted toward the development and deployment of fast-charging infrastructure for buses. He added that efforts are also underway to investigate the potential for an electric school bus aggregation effort that may directly interact with the wholesale electricity market. Mr. Kauffman suggested that some thought be given to a potential “school bus challenge”.

### **Presentation on Renewable Heating and Cooling Efforts**

A presentation was provided by Donovan Gordon, Director of Renewable Heating and Cooling, on the benefits of renewable heating and cooling technologies, particularly in terms of greenhouse gas emission reductions. Information was also presented on the *Renewable Heating and Cooling Policy Framework*, published in February 2017, which has three pillars: reducing technology costs and lowering barriers; exploring possible renewable heating and cooling mandates; and the consideration of financial incentives for these technologies. In addition to presenting specifics of the Authority’s objectives and strategies in this area, Mr. Gordon reported that next steps include the submission of Clean Energy Fund investment plans, a Ground Source Heat Pump incentive program launch in June 2017, and the Authority’s continued collaborative work with the State’s utilities.

In response to an inquiry by Mr. Willis, Mr. Gordon clarified that ground source heat pumps are considered renewable by virtue of their reliance on the constant temperature of the ground.

In response to an inquiry by Mr. Willis, Mr. Gordon stated that the current payback for ground source heat pumps is approximately 15 to 20 years. Ms. Joseph added that the estimated payback for air source heat pumps is approximately 5 to 6 years. Mr. Rhodes stated, however, that current analysis points toward improved cost-effectiveness for ground source heat pumps in the near future.

In response to discussions regarding the need for drilling expertise, Mr. Gordon stated that there is a lack of drillers that work exclusively in the geothermal industry at this time. Agreeing, Mr. Quiniones stated that the supply chain is the challenge. Ms. Joseph added that, as with any nascent market, there is a very immature supply chain and that total system costs need to be reduced to encourage more deployment, perhaps by focusing on reducing soft costs and by developing aggregation models.

Mr. Quiniones added that another barrier is that design engineers tend to be risk adverse. Ms. Joseph agreed, stating that more clarity should be provided regarding the value that these systems tend to offer. Mr. Kauffman stated that this technology area is a good example of how the Authority has evolved toward taking a more integrated energy approach, rather than providing grants for individual projects, stating that, although grants are applied toward hard and soft costs, they do not build markets. He added that tax credits exist for solar thermal technologies but, as there is no known tax equity market for the solar thermal market, other methods should be explored, such as financing, aggregation, and similar approaches used in the development of the photovoltaic market.

Mr. Daly stated that National Grid is testing business models through its efforts on Long Island that include: customer aggregation; training geothermal engineers; using utility cost of capital; and locating areas on the grid where natural gas is unavailable yet there are electric load constraints. The key is to solve multiple problems through aggregation as a means of jump starting the market. If successful on Long Island, deploying these approaches in Upstate New York could be the next step.

In response to inquiries from Mr. Willis about the structure of aggregation scenarios, it was explained that they could involve multiple customers availing themselves of either a utility-owned or a third party-owned system. Ms. Joseph added that aggregation saves much expense, as the mobilization costs for drilling are very high.

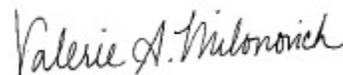
Mr. Koh stated that both program reports presented to the Committee at this meeting were terrific and he encouraged further thought as to how such efforts might be financed with the assistance of the New York Green Bank.

In response to an inquiry by Mr. Willis as to the locational aspects of how geothermal technologies could be sited within New York City, Mr. Gordon stated that several avenues are being explored through work with geologists. One such avenue involves investigating the potential to reuse water that is removed from the New York City tunnels and pushing it through heat pumps as an alternative to piping it into the rivers. Ms. Joseph stated that efforts are underway to develop a statewide resource map to show where this technology is viable and as a means of potentially lowering acquisition costs. Mr. Rhodes added that areas that require delivered fuel service, enjoy the appropriate geological conditions, and have a particular utility rate structure are likely to have the most potential.

#### **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 S. Milonovich  
Secretary to the Program Planning Committee



**NYSERDA**

**ANDREW M. CUOMO**  
Governor

**RICHARD L. KAUFFMAN**  
Chair

**JOHN B. RHODES**  
President and CEO

**NOTICE OF MEETING AND AGENDA**

March 30, 2017

TO THE MEMBERS OF THE PROGRAM PLANNING COMMITTEE:

PLEASE TAKE NOTICE that a meeting of the Program Planning Committee (the 98<sup>th</sup> meeting) of the New York State Energy Research and Development Authority (“Authority”) will be held in the Authority’s New York City Office located at 1359 Broadway, 19<sup>th</sup> floor, New York, New York, and in the Authority’s Albany Office located at 17 Columbia Circle, Albany, New York, on Thursday, April 27, 2017, commencing at 12:00 p.m., for the following purposes:

1. To consider and act upon the Minutes of the ninety-seventh (97<sup>th</sup>) meeting of the Program Planning Committee held on January 24, 2017.
2. To consider and act upon a resolution recommending approval of amendments to the Program Planning Committee Charter.
3. To receive a report on Energy Storage efforts.
4. To receive a report on Renewable Heating and Cooling efforts.
5. To transact such other business as may properly come before the Committee.

Members of the public may attend the meeting at either of the above locations. Video conferencing will be used at both locations and the Authority will be posting a video of the meeting to the web within a reasonable time after the meeting. The video will be posted at <http://www.nyserdera.ny.gov/About/Board-Governance/Board-and-Committee-Meetings>.

Valerie S. Milonovich  
Secretary to the Program Planning Committee

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