

PROGRAM PLANNING COMMITTEE
OF THE
NEW YORK STATE
ENERGY RESEARCH AND DEVELOPMENT AUTHORITY

Minutes of the 91st Meeting
Held on June 18, 2015

Pursuant to a Revised Notice and Agenda dated June 15, 2015, the 91st meeting of the Program Planning Committee (“Committee”) of the NEW YORK STATE ENERGY RESEARCH AND DEVELOPMENT AUTHORITY was convened at 10:00 a.m. on Monday, June 18, 2015, in the Authority’s New York City Office, located at 485 Seventh Avenue, 10th Floor, New York, New York, and in the Authority’s Albany Office at 17 Columbia Circle, Albany, New York.

The following Members of the Committee were present:

Mark Willis, Committee Chair
Richard Kauffman
Sherburne Abbott
Charles “Chuck” Bell
Ken Daly
Jay Koh
John McAvoy
Gil Quiniones
Elizabeth W. Thorndike, Ph. D

Also present in either Albany or New York City were: John B. Rhodes, President and CEO of NYSERDA; Janet Joseph, Vice President for Technology and Strategic Planning; Jeffrey J. Pitkin, Treasurer; Noah Shaw, General Counsel; David Margalit, Chief Operating Officer, 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 the press on June 9, 2015. A Revised Agenda (attached hereto as Exhibit A) was provided on June 15, 2015. Each of the Committee Members introduced themselves.

Approval of March 31, 2015 Minutes

The first agenda item concerned the approval of the minutes of the 90th meeting of the Committee held on March 31, 2015. Upon motion duly made and seconded, and by unanimous voice vote, the minutes of the 90th meeting of the Committee were approved.

Report from the President and CEO

John Rhodes, President and CEO of the Authority, briefly described two recent efforts engaged in by the Authority. He described the recent submission to the New York State Public Service

Commission (PSC) of a large-scale renewable energy assessment entitled, *Large-Scale Renewable Energy Development in New York: Options and Assessment*, as part of a separate track to the PSC's Reforming the Energy Vision regulatory proceeding. This submission was discussed in greater detail later in the meeting.

Mr. Rhodes also mentioned that a Clean Energy Fund supplemental proposal is to be filed with the PSC on June 25, 2015. In this proposal, the Authority anticipates requesting funding of about \$5 billion over 10 years to include the full authorization of the NY-Sun Program, capitalization of the New York Green Bank (NY Green Bank), funding necessary for the large-scale renewable effort, market development and innovation programs, and for many of the existing energy efficiency programs currently funded through the system benefits charge. Mr. Rhodes added that upon the completion of the regulatory process, the Authority will likely be engaging in new directions and activities which will lead to new operational capabilities.

In response to Mr. Daly's inquiry regarding the total amount of requested funding and how it compares to more recent funding levels, Mr. Rhodes confirmed that the requested amount is intended to fund all of the efforts mentioned and that, overall, it represented a meaningful reduction for the Authority. Mr. Kauffman added that the Administration has committed to an overall reduction of utility collections, and toward efforts to better leverage and realize greater value from those collections.

Resolution Regarding Amendments to the Clean Air Interstate Rule (CAIR)/New York Battery and Energy Storage Technology Consortium™ (NY-BEST) Program Plan

Jason Doling, Program Manager, Energy Storage, presented the proposed amendments to the CAIR/NY-BEST Program Plan, including background information. He explained that under New York State regulations that implement the federal CAIR programs to control nitrogen oxide (NO_x) emissions, 10% of the NO_x emission allowances were allocated by New York State Department of Environmental Conservation (DEC) to the Energy Efficiency and Renewable Energy Technology accounts. In April 2009, the Authority's Board approved the CAIR Program Plan and budget to help seed the formation of NY-BEST. NY-BEST is an independent not-for-profit organization, created to position New York State as a global leader in energy storage technology including electric grid, heavy-duty transportation, and other storage applications.

The Members were requested to consider the allocation of uncommitted CAIR interest earnings and proceeds from the sale of allowances in 2014 to the CAIR Program Budget and a reallocation of funds within the CAIR budget. Since the most recent amendment to the CAIR Program Plan, additional funds totaling \$728,810 have become available due to interest earnings and proceeds from CAIR allowance sales in 2014. Mr. Doling reported that no additional CAIR allowances are expected as a result of CAIR transitioning into the EPA's Cross-State Air Pollution Rule (CSAPR) during 2015.

Mr. Doling reported that 95% of the \$25.5 million in funds budgeted within the CAIR Program Plan have been expended or committed. This includes a contract with NY-BEST to partially support operations and management as the consortium becomes operationally self-sufficient.

Through earned revenue, NY-BEST has expanded its financial reserves to enable a smooth transition when NYSERDA operational funding is exhausted in approximately two years.

Mr. Doling also mentioned that the BEST Test and Commercialization Center located at Eastman Business Park in Rochester began testing in May 2014. In addition to the \$3.4 million in CAIR funds, NY-BEST was awarded \$3.5 million through the Finger Lakes Regional Economic Development Council to establish the Center.

In addition, a battery prototyping center was developed at Rochester Institute of Technology and opened in March 2015 with a semi-automated battery pouch cell line for prototyping battery cells. NY-BEST has also helped members with introductions to potential customers, facilitated product development and commercialization partnerships, helped members with funding applications and investor pitches, and assisted members with understanding and navigating financial and regulatory requirements for energy storage.

In response to an inquiry by Mr. Willis, Mr. Doling explained that the funds allocated for research and development activities have been distributed through two major solicitations, one that focuses on bench-to-prototype proposals and another that is more broadly constructed to encourage innovative ideas.

In response to an inquiry by Dr. Thorndike about how these efforts compare to other Authority program efforts, Mr. Doling stated that a process evaluation was conducted comparing these efforts to peer efforts across the nation. The results of that examination were positive and attributed an active membership and a trade association with robust stakeholder communication to that success. He also reported that the organization continues to find new ways to differentiate itself and provide added value. Mr. Kauffman added that what third parties are willing to pay for services is a good market test. Ms. Joseph added that she has observed commercial entities willing to invest and she believes that also to be a positive indication of success.

Mr. Koh stated that he found this to be a great report and suggested defining a reasonable yet meaningful metric to represent technology transfer.

At the conclusion of the presentations and discussions, the PPC voted unanimously to recommend that the full Board approve the proposed amendments to the CAIR/NY-Best Program Plan. A copy of said resolution is attached hereto as Exhibit B.

Resolution Regarding Amendments to the Operating Plan for Investments in New York Under the CO₂ Budget Trading Program and the CO₂ Allowance Auction Program (RGGI Operating Plan)

Dave Coup, Assistant Director, Energy and Environmental Analysis, presented the proposed amendments to the Regional Greenhouse Gas Initiative (RGGI) Operating Plan that outlines how New York's RGGI auction proceeds are be invested in energy efficiency, renewable energy and carbon abatement measures. The RGGI investment portfolio is designed to achieve greenhouse gas emission reductions by deploying commercially available energy efficiency and renewable energy technologies, building the State's capacity for long-term carbon reduction, empowering

New York communities to reduce carbon emissions and transition to cleaner energy, stimulating entrepreneurship and growth of clean energy and carbon abatement companies in New York, and creating innovative financing to increase adoption of clean energy and carbon abatement in the State.

Each year, Authority staff convene a group of stakeholders representing a broad array of energy and environmental interests to advise it on how best to use RGGI funds to achieve the goals of the program. A meeting with stakeholders was held on April 30, 2015 to obtain feedback on the draft 2015 Amendment and written comments were also received.

Mr. Coup explained in detail the primary underlying planning assumptions used by staff. For instance, Authority staff assumed that the average 2015 allowance price will be \$5.38/allowance. He also stated that the planning horizon continues to be one year as it is difficult to reliably estimate proceeds levels three years into the future due to market volatility, the uncertain impact of potential market speculation related to Federal carbon regulations, and because of the anticipated future leveraging of RGGI proceeds with proposed Clean Energy Fund (CEF) activities. The total estimated proceeds for Fiscal Year 2015-2016 are \$127.4 million.

The State Budget enacted in April 2015 directed that \$41 million of RGGI funds be transferred to support environmental tax credits and the Environmental Protection Fund (EPF). The budget also directed the Authority to continue to offer low interest financing under the Green Jobs-Green New York (GJGNY) program through March 31, 2016. As such, some funds from the March 2015 auction were not allocated to programs as they may have been in the past, to avoid the risk that they would need to be retracted later. On a net basis, it is estimated \$27 million of additional RGGI proceeds will be needed to continue GJGNY for the next year. Despite these developments, Authority staff project sufficient cash balances to cover projected RGGI program expenditures for the next fiscal year and the net deficit of \$20.6 million represents a manageable commitment level compared to projected revenues.

To deliver on its primary missions to reduce greenhouse gas emissions and attract greater private investment in clean energy, the CEF investment portfolio will be designed to achieve scale in clean energy markets, including energy efficiency and clean distributed generation. These key CEF objectives dovetail with the RGGI investment parameters, and there is an opportunity to leverage CEF and RGGI funds to help achieve overall REV objectives. The commitment to continued RGGI support for clean energy market development is designed to support future CEF program design and implementation on a ‘fuel neutral’ basis. The CEF, if approved, would begin new activity on January 1, 2016 and the identified \$25 million of RGGI funding will be allocated to support the CEF activity.

With regard to stakeholder input, Mr. Coup reported that opposition to the State budget transfers was fairly universal among participating stakeholders and that a number of automotive manufacturing representatives expressed a desire to see more funds allocated to electric vehicle (EV) incentives to complement the Charge NY investment in EV infrastructure.

In response to an inquiry by Mr. Daly as to whether the goal of budgeting is to “net to zero” or plan for a surplus, Mr. Pitkin responded that the approach is to strive for net to zero. However,

funding shifts were necessary to anticipate potential outcomes. A group discussion was had with regard to revenues.

Mr. Daly applauded staff for balancing the funding realities without closing programs. He suggested that a tracking process could be developed for reference throughout the year.

In response to an inquiry by Mr. Willis with regard to whether the Operating Plan can be amended mid-year, Mr. Rhodes stated that was possible, adding that, as presented, he does not foresee any commitments included in the Operating Plan that would not be able to be honored.

In response to a suggestion by Mr. Daly that adjustments be made to further bolster those program efforts that are the most beneficial to achieving the goals of the RGGI program, Mr. Rhodes explained that currently the Authority is not always in a position to deliver needed market solutions with funding other than that accessible through RGGI.

In response to an inquiry by Mr. Quiniones, Mr. Kauffman confirmed that, despite the budget challenges, the Authority anticipates achieving its projected programmatic outcomes. Mr. Quiniones also stated that greenhouse gas reductions should also result from the State programs in receipt of the funding transfers, consistent with the mission of the RGGI program.

In response to an inquiry by Ms. Abbott about whether the budget allocations attributable to the Clean Energy Fund are consistent with the RGGI philosophy and the achievement of greenhouse gas reductions, Mr. Rhodes responded that the Authority has adopted a portfolio that not only provides for broad participation across fuel sources, but also includes programmatic opportunities that have higher impact and greater progress.

Mr. Willis suggested that it would be useful for the Committee to receive a report throughout the year, such as when revenues are received and on adjustments for the following year.

At the conclusion of the presentations and discussions, the PPC voted unanimously to recommend that the full Board approve the proposed amendments to the RGGI Operating Plan. A copy of said resolution is attached hereto as Exhibit C.

Large-Scale Renewable Energy Development Options and Assessment Proposal

Doreen Harris, Program Manager, Grid-Tied Renewables, presented an overview of activities as a result of a large-scale renewable (LSR) energy track emanating from the PSC's Reforming the Energy Vision proceeding. In response to a February 2015 PSC Order, and working with the LSR working group, the Authority and its consultants prepared a study titled *Large Scale Renewable Assessment and Options Paper*, filed on June 1, 2015. The paper, along with a *Notice Soliciting Comments* that included a set of questions, is available for public comment.

Ms. Harris provided additional background that described the State's Renewable Portfolio Standard (RPS), initiated in 2004. Thus far, the RPS has enabled developers to build nearly 1,900 megawatts of LSR generation capacity and has delivered benefits well in excess of costs, on the order of 5:1 according to a 2013 program review.

Authority analysis and stakeholder feedback suggested that changes in the current approach to LSR energy development – to take changing market conditions into account and reinvigorate New York’s project pipeline – are warranted to achieve the core policy objectives of: achieving the lowest possible cost while maximizing customer benefits, promoting competition, and animating voluntary markets for renewables to complement public investments. The LSR working group was established to evaluate the next generation of LSR policy in New York and it explored several concepts. The February 2015 PSC Order also provided a formal framework under which to launch a proceeding to consider and effectuate a new LSR policy.

A range of policies, frameworks and structures available for procuring and financing LSR resources were examined and a detailed comparative financial analysis was conducted. Findings include that State policy objectives articulated through REV and the Draft State Energy Plan will be best accomplished through a combination of near- and long-term steps that: leverage existing programs and authority; provide revenue certainty for project developers; advance new contracting and ownership models for renewables; and create new opportunities for large end-users to buy the renewable energy products their shareholders demand. In considering these objectives and options, the Authority recommended a series of program design principles and strategies for consideration, which Ms. Harris described in greater detail.

A technical conference will be convened on July 8, 2015 to discuss the options and results included in the paper. The overall schedule includes PSC Orders establishing a new program to be implemented in 2016 and launched in 2017. NYSERDA will also issue a 2016 Main Tier solicitation using funds from the CEF to avoid market gaps.

Mr. Daly stated that he felt that this analysis was very comprehensive and well presented. This was echoed by Mr. Quiniones who stated that the State team on this issue worked very well together.

In response to an inquiry by Mr. Koh, Ms. Harris responded that interest rate sensitivity was included in the analysis. Mr. Quiniones stated that there are flexibilities built in for the amount of overall procurements over time. Mr. Kauffman added that LSR projects are insulated against rising fuel costs.

In response to an inquiry by Dr. Thorndike, Ms. Harris provided additional information on the status of the voluntary renewable energy market in New York and activity in neighboring regions. Dr. Thorndike stated that she also felt this was a very good report.

NY Green Bank Update

Alfred Griffin, President of the NY Green Bank, provided the Committee Members with an update of recent Green Bank activity. Mr. Griffin stated that the objective of the NY Green Bank is to bring more private capital into New York’s clean energy markets by working in partnership with the private sector to identify and alleviate financing gaps in the clean energy marketplace, resulting in accelerated deployment of clean energy in New York State.

NY Green Bank activities and milestones since Mr. Griffin last reported to the Members include the filing of an Initial Business Plan, along with a Metrics, Reporting & Evaluation Plan and required quarterly reports. Risk management protocols, including the establishment of the Investment and Risk Committee, have been put into place, additional staff members have been hired, and an Advisory Committee has been formed. NY Green Bank staff have organized and participated in a series of meetings around the State; have spoken at many conferences; and have engaged in stakeholder outreach, including with industry groups, regulators, and consumer advocacy organizations. Other notable milestones reported by Mr. Griffin included the:

- filing of a Petition with the PSC to complete the NY Green Bank capitalization;
- hosting of the Second Annual International Green Bank Summit that included participants from over 40 Green Banks and over 40 private sector participants; and
- issuance of a Request for Proposals (RFP) in March 2015 related to engaging a third party Fund Administrator, Loan/Investment Servicer, and Custodian, with a final selection expected by the end of June 2015.

With regard to market response and the transaction pipeline, Mr. Griffin reported that the \$734 million in formal proposals that requested NY Green Bank capital could leverage approximately \$3 billion of third party capital. The NY Green Bank has responded positively to \$569 million of the formal proposals. Of this, the current active portfolio is about \$338 million, with \$193 million in the intermediate stages of internal approval and negotiation, and \$56.9 million in the advanced stages of approval. Moving forward on those deals is generally conditioned upon certain requirements that may include revising terms, adjusting the capital structure, gaining clarity as to third-party financing participants, or other elements. Overall, the NY Green Bank reports a robust pipeline of transactions in various stages on the path to closing which will occur as various conditions are met.

Mr. Griffin reported that each transaction under consideration is expected to be transformative to the financing markets, ultimately resulting in greater private capital being deployed in New York's clean energy markets. In addition, each transaction is expected to result in reduced greenhouse gas emissions within the State. He also reported that there is diversity among technology types, end user types and geography, and that the NY Green Bank is working to partner with regional banks, the largest global banks, small boutique investment firms and the largest private equity firm.

Mr. Griffin also reported that many professionals at the Authority are instrumental in achieving NY Green Bank's mission, and thanked everyone for their continued support. In addition, Mr. Griffin requested that Board Members help communicate the NY Green Bank's activities regarding how it can be helpful in breaking down financing barriers and asked for any feedback that may be gleaned by others from the market. Overall, Mr. Griffin expressed that NY Green Bank is motivated to deliver on its mandate to substantially impact the State's clean energy financing markets.

Mr. Daly stated that he was happy to hear of all of this activity and to see tangible traction, as many of the activities will translate into benefits to ratepayers. It has been his recent experience that in meeting with others in the private sector, he has perceived a neutral position regarding interest in REV and the NY Green Bank. Mr. Griffin responded that, in his opinion, there seems to be much interest in REV. However, he has observed that the traditional banking institutions have not yet heard of REV. He also stated that he believes that the biggest hurdle is the many great entities with excellent ideas that have yet to demonstrate their ability to execute. He is confident that the NY Green Bank aggregation activities can help facilitate in that area.

Mr. Kauffman reminded the Committee that the NY Green Bank is a key State initiative and is a new activity that required new capabilities from the Authority. He applauds the team that has set it up in this very deliberate way. He mentioned that green banks follow different strategies. For example, some feature low-cost financing. Based on market research, the focus of the NY Green Bank is on filling gaps in the financing markets. The team feels that, by filling gaps, it can leverage ratepayer dollars more effectively and accomplish more. He also addressed the issue of “additionality” – or, how will we know if we are providing value? In his opinion, if someone is willing to pay for the service or capabilities, then there is value. It is also a question of determining whether the activities undertaken would not otherwise have happened. Mr. Kauffman emphasized that just because there are gaps, it is not easy to close transactions, as the private sector is organized differently. The NY Green Bank must work across financial institutions to assist them in finding the opportunities that make the most sense for them.

Mr. Koh commended the quality of the NY Green Bank staff and the amount of effort undertaken. Based on his attendance at a recent international summit, he stated that the NY Green Bank is a high profile initiative that will be replicable. Mr. Koh suggested that “activity generated” is also a great metric on which to focus. He suggested further that the transactions that the NY Green Bank does not ultimately close, but yet catalyzed, are key to determining the value and those indicators should receive broader recognition.

Ms. Abbott commended Mr. Griffin for a presentation that he provided in Syracuse, stating that it was extremely informative and provided a better sense of the NY Green Bank. She suggested that there is an opportunity to further engage the research community and to establish a dialogue with a goal of developing metrics that link financing and greenhouse gas reduction. She suggested that there is a real interest in understanding this link, but a mechanism must be developed to address the inability to access private sector data.

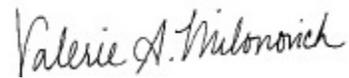
Mr. Quiniones commended the NY Green Bank team, stating that this has not been an easy task. In response to an inquiry about the status of transactions, Mr. Griffin provided some additional information on the status of those most likely near-term transactions. Mr. Quiniones also supported Mr. Koh’s suggestion regarding capturing any transactions that resulted from the NY Green Bank’s involvement even if the NY Green Bank did not ultimately provide any financing.

Mr. Willis agreed that the ultimate measure of success could be that the NY Green Bank encouraged the private sector to do something it might not have otherwise undertaken. He also asked Mr. Griffin to keep the Committee informed of future progress.

Mr. Willis indicated that the last item on the agenda was other business and suggested that the schedule of meetings be revisited to perhaps make it more conducive for additional Board Members to attend Program Planning Committee meetings. Members were asked to consider this option and provide their preferences.

There being no additional business to consider, upon motion duly made and seconded, and by unanimous voice vote, the meeting was adjourned.

Respectfully submitted,

A handwritten signature in cursive script that reads "Valerie S. Milonovich".

Valerie S. Milonovich
Secretary to the Program Planning Committee


NYSERDA
ANDREW M. CUOMO
 Governor

RICHARD L. KAUFFMAN
 Chair

JOHN B. RHODES
 President and CEO

REVISED NOTICE OF MEETING AND AGENDA

June 15, 2015

TO THE MEMBERS OF THE PROGRAM PLANNING COMMITTEE:

PLEASE TAKE NOTICE that a meeting of the Program Planning Committee (the 91st meeting) of the New York State Energy Research and Development Authority will be held in the Authority's Albany Office located at 17 Columbia Circle, Albany, New York, and in the Authority's New York City Office located at 1359 Broadway, 19th floor, New York, New York, on Thursday, June 18, 2015, commencing at 10:00 a.m., for the following purposes:

1. To consider and act upon the Minutes of the 90th meeting held on March 31, 2015.
2. To receive an overview from the President and CEO on NYSERDA's future directions.
3. To consider and act upon a resolution recommending approval of amendments to the *Clean Air Interstate Rule (CAIR)/New York Battery and Energy Storage Technology Consortium™ (NY-BEST) Program Plan*.
4. To consider and act upon a resolution recommending approval of revisions to the plan entitled *Operating Plan for Investments in New York Under the CO₂ Budget Trading Program and the CO₂ Allowance Auction Program*.
5. To receive a report regarding the Authority's June 1, 2015 proposal of options to the Public Service Commission for continuing support of large-scale renewable energy development.
6. To receive a status report from the President of the NY Green Bank.
7. 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 two business days of 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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Exhibit B

Resolution No. ____

RESOLVED, that revisions to the “Clean Air Interstate Rule (CAIR)/New York Battery and Energy Storage Technology Consortium™ (NY-BEST) Program Plan” presented to the Members for consideration at this meeting, with such non-substantive, editorial changes and supplementary schedules as the President and Chief Executive Officer, in his discretion, may deem necessary or appropriate, are adopted and approved;

AND BE IT FURTHER RESOLVED, that the Members direct the President and Chief Executive Officer to develop a revised program plan incorporating such revisions as soon as reasonably possible.

Exhibit C

Resolution No. ____

RESOLVED, that revisions to the “Operating Plan for Investments in New York Under the CO₂ Budget Trading Program and the CO₂ Allowance Auction Program” as presented to the Members for consideration at this meeting, with such non-substantive, editorial changes and supplementary schedules as the President and Chief Executive Officer, in his discretion, may deem necessary or appropriate, are adopted and approved;

AND BE IT FURTHER RESOLVED, that the Members direct the President and Chief Executive Officer to develop a revised operating plan incorporating such revisions as soon as reasonably possible.