

**MINUTES OF THE  
NEW YORK STATE ENERGY PLANNING BOARD MEETING  
HELD ON FEBRUARY 27, 2012**

Pursuant to notice dated February 21, 2012, the third meeting of the New York State Energy Planning Board (“Board”) was convened on February 27, 2012 at 1:00 p.m. at the Albany office of the New York State Energy Research and Development Authority, 17 Columbia Circle, Albany, New York. The meeting was webcast. A copy of the meeting Notice is annexed as Exhibit A.

The following Energy Planning Board Members or their designees were present:

- Francis J. Murray, Jr., President and CEO of the New York State Energy Research and Development Authority and chair of the Board
- Garry Brown, Chairman of the NYS Public Service Commission
- Assemblyman Kevin Cahill
- Thomas Coakley
- Joe Martens, Commissioner of the NYS Department of Environmental Conservation
- Kenneth Adams, Chairman and CEO of Empire State Development (Joe Chan, designee)
- Darrel Aubertine, Commissioner of the NYS Department of Agriculture & Markets (William Ketzer, designee)
- Colleen Gardner, Commissioner of the NYS Department of Labor (Mario Musolino, designee)
- Joan McDonald, Commissioner of the NYS Department of Transportation (Stanley Gee, designee)
- Cesar Perales, Secretary of State (George Stafford, designee)
- Dr. Nirav Shah, Commissioner of the NYS Department of Health (Robert Chinery, designee)
- James Sherry, Director of the NYS Division of Homeland Security and Emergency Services (Brian Wright, designee)

- Stephen Whitley, President and CEO of the New York Independent System Operator (Patrick Curran, designee)
- James Winebrake (Mark Coleman, designee)

Also present were Janet Joseph, NYSERDA's Vice President for Technology and Strategic Planning; John Williams, Director of NYSERDA's Energy Analysis program and director of the Board's Working Group; and David Munro, NYSERDA Deputy Counsel and secretary to the Board. In addition, the meeting was attended by staff from various entities on the Board as well as members of the public.

Chairman Murray called the meeting to order. He advised that the meeting was being videotaped, and the video will be placed on the Energy Planning Board website.

Before turning to the formal agenda, Mr. Murray welcomed Tom Coakley, who was appointed to the Board by Senate Majority Leader Dean Skelos. Mr. Coakley was born in Canton, New York, earned his bachelor's degree at Brown University, served in the US Army in Vietnam, and then earned his MBA at the Wharton School. He has spent the last several decades at St. Lawrence University, serving as a professor and administrator. Mr. Coakley stated that as Vice President for Administration, he was involved in energy procurement as well as development of the university's climate action plan. He said he is very excited and honored to be named to the Board.

Mr. Murray also acknowledged the contributions of Khaled Yousef, whom Mr. Coakley is replacing. Mr. Yousef served on the Board since its inception, and Mr. Murray stated that the Board appreciated his active engagement with issues before the Board, his insights and his commitment to the work of the Board.

Mr. Murray stated that there were several items on the meeting agenda: (1) reviewing the minutes from the Board's second meeting in October 2011; (2) an update by Mr. Murray on the energy-related initiatives that the Governor announced in his 2012 State of the State address; (3) several presentations from various agency staff; and (4) a discussion on topics to be discussed at, and the frequency of, Board meetings between now and September 1, 2012, when the Board must release a draft Energy Plan.

#### Minutes from October 2011 Meeting

Mr. Murray stated that a copy of the draft Minutes of the October 26, 2011 meeting was provided to Board members prior to the meeting. Assemblyman Cahill stated that he did not receive the draft minutes. Mr. Murray suggested that the Board consider approving the minutes, subject to any changes that Mr. Cahill may propose after reviewing the draft minutes. Whereafter, upon motion duly made and seconded, and by unanimous voice vote, the Minutes of the October 26, 2011 meeting were approved subject to Mr. Murray's qualification.

## Energy Initiatives contained in the 2012 State of the State

Mr. Murray reported on several items that were included in the Governor's annual State of the State message, each of which will impact the Board's work as it develops a draft Energy Plan:

On-Bill Recovery. The Power NY Act of 2011, enacted by the Legislature last June, directed NYSERDA to develop an on-bill recovery program, which will enable homeowners to pay back loans for energy efficiency upgrades through a charge on their monthly utility bills. NYSERDA began accepting applications for on-bill recovery loans for residential homeowners on January 30, 2012. Working with the Department of Public Service and utility staff, NYSERDA launched the program for residential homeowners six months earlier than planned at Governor Cuomo's request. The on-bill recovery program will be expanded to include small businesses, not-for-profit organizations, and multifamily buildings by May 30, 2012 as required by the enabling legislation. Mr. Murray noted that a few proposed clarifying amendments to the legislation have been included in the Governor's 30-day budget amendment bill, and NYSERDA hopes that the Legislature will quickly adopt those changes.

NY-SUN. The Governor's NY-SUN initiative calls for the doubling of 2011 customer-sited photovoltaic (PV) installations during 2012 and for quadrupling the 2011 installations during 2013. Mr. Murray explained that NYSERDA has begun evaluating potential funding needs and developing policy options. In addition, Mr. Murray reported that NYSERDA had filed on February 14, 2012 a petition with the Public Service Commission requesting approval to reallocate uncommitted Renewable Portfolio Standard funds, primarily to support additional customer-sited tier PV installations. Mr. Murray noted that the New York Power Authority and the Long Island Power Authority are working on other aspects of the NY-SUN program.

State Buildings. NYSERDA and other State agencies and authorities, led by the New York Power Authority, are involved in a new initiative to increase energy efficiency in State buildings.

Energy Highway. Mr. Murray stated that, recognizing the critical role that infrastructure plays in powering New York's economy, Governor Cuomo has called for the development of an "Energy Highway" for New York. Mr. Murray stated that the Governor's initiative is a natural evolution of the State's most recent energy planning process. The State's energy infrastructure, which has generally served New Yorkers well over the decades, relies heavily upon an aging generation and transmission infrastructure. Congestion at critical points on the transmission system limits opportunities to capitalize on potentially less costly energy sources. More stringent environmental regulations need to be anticipated and incorporated in a 21<sup>st</sup> century energy infrastructure. Whether it be "Smart Grid," energy storage or some other technology, the State must also seek to incorporate innovation and greater efficiency into the next generation of infrastructure investments. Done intelligently, this investment offers genuine opportunities for economic development and job creation.

Mr. Murray continued, stating that the Governor has established a Task Force comprised of senior Administration officials to identify short term opportunities for investment in the

State's energy infrastructure so as to advance the policy objectives that underlie the Energy Highway. The Task Force is co-chaired by Department of Environmental Conservation Commissioner Joe Martens and Power Authority President & CEO Gil Quinones, and also includes Mr. Murray, Public Service Commission Chairman Garry Brown and Empire State Development President & CEO Ken Adams. The Task Force will kick off its effort with an Energy Highway Summit this spring at Columbia University. The Task Force will then issue a Request for Information, seeking to learn from interested parties what ideas they may have as well as what suggestions and specific solutions they recommend to address these policy challenges. The goal is for the Task Force to issue its Action Plan this summer.

Mr. Murray stated that the Task Force's work will be an important input into the development of the next State Energy Plan.

Mr. Murray said that the remainder of the meeting would consist of presentations by various agency staff on issues related to the development of the draft Energy Plan. Note: each of these power point presentations can be found on the State Energy Planning Board website:

<http://www.nysenergyplan.com/boardmeetings.html>

These minutes provide a high-level summary of each of the presentations.

#### The Energy-Related Priorities of the 2011 Regional Economic Development Councils' Strategic Plans

Deputy Secretary of State George Stafford gave a presentation on the work of the Regional Economic Development Councils. Last July Governor Cuomo launched a new operating model for economic development led by ten Regional Economic Development Councils (Councils). The Governor established the Councils to:

- Create community-driven five-year strategic plans to guide regional economic growth;
- Coordinate economic development efforts in each region; and
- Guide State actions to support economic development

The Councils brings together labor, business, academia, and communities to develop five-year strategic plans based on each region's unique strengths and challenges. Lt. Gov. Robert Duffy chairs all ten Councils, which also have two Vice Chairs- one a leader of a major university in the region and the other a business leader. Local officials and State Legislators serve as ex officio members. Empire State Development, the Department of State and the Department of Labor were heavily involved in preparing for the Councils, as well as providing direct support once the Councils were up and running.

The Strategic Planning Process began last summer and plans were submitted in November 2011. The regions created unique public-private partnerships that resulted in strategic plans which identified key projects and established priorities. (Top plans were Western NY, Central NY, North Country, Long Island.) The regional economic plans lay out specific

strategies and implementation actions, as well as performance measures. Six Plans identified energy as a principal focus of their plans.

To redesign the way State government supports economic development, a Consolidated Funding Application (“CFA”) was created to give project sponsors streamlined access to a combined pool of grants and tax credits from ten state agencies and authorities and dozens of existing programs. In December Governor Cuomo announced that \$785 million was awarded to 720 projects determined to be most in line with the priorities of the Regional Councils. In 2012 an additional CFA round will be offered. It is anticipated that there will be \$130 million in new capital funding and \$70 million in tax credits. In addition, resources from a wide range of existing State programs will be available through the CFA.

This year, the Regional Councils are beginning to implement their five-year strategies, building on the momentum generated through the planning process. To strengthen the Regional Councils as a primary driver for economic development, State agencies will begin to use their authorities and resources to help the Regional Councils implement the 400+ strategies identified in the ten plans. Mr. Stafford stated that thus far, the preparation of the regional economic development strategies and preparation of the State Energy Plan have been going on independently. So, one of the challenges now is ensuring that the Energy Plan is appropriately responsive to the Councils’ priorities as the Board moves forward with drafting the Energy Plan.

Commercializing Research is one of the five common energy-related themes presented in the plans created by the Regional Councils. To better advance this theme, the Energy Plan could, for example, identify regional support for business development opportunities related to the energy sector and target assistance towards those regional needs. Workforce Development is another of the energy-related themes. As called for in many regions, the Energy Plan could advance this theme by more aggressively encouraging learning opportunities in secondary education of skills needed for energy-related careers, such as science, technology, engineering, and mathematics. Energy Efficiency is the third of the energy-related themes. The Energy Plan could advance this theme by encouraging innovative approaches that allow for regional flexibility. For example, the Western NY Council is proposing neighborhoods and anchor institutions for demonstration sites to set world class standards for energy efficiency. Renewable Energy is the fourth energy-related theme. Examples of how the Energy Plan could advance this theme include recommendations from the North Country and the Capital Region Regional Councils to provide clearer direction and support for bio-based fuels and consulting with the Regional Councils on the issue of grid interconnection to support these industries. The final energy theme is Energy Costs. The regions identified some specific examples of concerns, particularly as they related to how power allocation programs make a positive contribution to economic development efforts.

Mr. Stafford then outlined a number of recommendations to guide the Board as it develops a draft State Energy Plan. He stated that energy is obviously a critical need for increased economic growth, and all of the Regional Councils focus on it. It would be extremely valuable for the Energy Plan to explicitly recognize its connection to the regional economic strategies. One recommendation would be for the Energy Plan to formally acknowledge the Council’s recommendations within the context of the Energy Plan. Specifically, there could be a

section that addresses the overall strategies identified by the Councils, along with whatever recommendations the Board has agreed to advance to address those strategies.

Another recommendation is for the Energy Plan to avoid unintentionally advocating for one-size-fits all approaches. For example, while renewable resources were a common theme, each region may have its own idea of which resource or resources are most suitable for meeting that region's future needs. In agricultural regions, the planning focus might be on biomass. In more urban areas, solar power may be emphasized.

The Energy Plan should also be direct about the cost of energy to businesses and consumers and the impact of new programs on that cost. While it is not necessary to cite specific costs of each program, there should be discussion of the benefits of those programs to consumers.

Finally, each Regional Council asked for an opportunity to have a dialogue with the State to help shape State programs to meet regional priorities. This dialogue would be invaluable to help the Councils understand existing State programs, and also, to the degree laws and regulations allow, demonstrate to the regions the Energy Plan's flexibility to help fulfill job growth needs of each region.

Mr. Stafford stated that the Lt. Governor leads a statewide Chairman's Committee made up of the co-chairs of each Council, as well as about a dozen statewide organizations. Mr. Stafford suggested that the Chairman's Committee may provide an opportunity for this dialogue.

Mr. Murray emphasized the need for the Regional Councils and the Board to work together moving forward. He suggested that the Board consider holding public hearings on the draft Plan in the various Council regions and invite Council members to attend the hearings.

#### Public Service Commission Energy Efficiency Initiatives

The next presentation was given by Floyd Barwig, the Director of the Department of Public Service's Office of Energy Efficiency and Environment. He first discussed several programs that have been reauthorized and recently updated by the Public Service Commission (PSC). These programs are the (1) System Benefits Charge ("SBC"), established in January 1998 to fund public policy initiatives not expected to be adequately addressed by participants in competitive electric markets, and (2) the Energy Efficiency Portfolio Standard ("EEPS"), established in June 2008 for electric programs, and in May 2009 for gas programs.

SBC Programs. In 1998 the PSC authorized \$78 million/year funding for three years, targeting energy efficiency programs, energy related R&D and energy affordability for the low income sector. In 2001 SBC was renewed for five years; the funding level was increased to \$150 million/year with an additional focus on peak load reduction. In 2005 the PSC renewed SBC for five additional years increasing the funding level to \$175 million/year- there were 15 Energy Efficiency programs and 11 R & D programs. In 2010 SBC was extended for another five and one half years. Resource acquisition programs were rolled into EEPS, with the new SBC focused on Technology and Market Development at an average annual budget of \$100 million.

Mr. Barwig explained that the key objectives of the Technology and Market Development program are as follows: accelerate innovation through research/market analysis; technology development and demonstration; promotion of a clean energy economy; and improve energy-use standards and best practice. There are eight initiatives in three categories: Power Supply & Delivery; Building Systems; and Clean Energy Infrastructure. Power Supply and Delivery includes Smart Grid and Electric Vehicle Infrastructure; Advanced Clean Power; and Combined Heat and Power. Building Systems includes Advanced Buildings as well as Advanced Energy Codes and Standards. Clean Energy Infrastructure includes Market Development; Clean Energy Business Development; and Environmental Monitoring, Evaluation and Protection.

Energy Efficiency Portfolio Standard (EEPS). The EEPS was established by the PSC in response to the “15 by 15” goal established in New York several years ago. Benefits include: reducing ratepayers’ energy bills as well as greenhouse gas emissions/air pollution; enhancing system reliability; creating clean energy jobs; and stabilizing energy costs. EEPS’ primary focus is resource acquisition. There are separate electric and gas programs. EEPS 1 ran from January 2009-December 2011, and EEPS 2 will span from January 2012 through December 2015. Budgets/Goals are as follows:

- Electric \$375 million/year - 1.9 million MWhs/year
- Gas \$148 million/year - 3.8 million Dts/year.

There are 12 program administrators: NYSERDA (statewide); six electric/gas combination utilities; and five gas only utilities. Altogether EEPS consists of a total of 106 electric and gas programs. Program types include prescribed efficiency equipment rebates, site-specific custom Projects, and market transformation programs. Sectors served include Residential, Low Income, Multi-family, Commercial, Industrial and Agricultural.

Mr. Barwig stated that moving forward, the PSC must remain flexible and will modify programs based on new technologies (he noted LED lighting in particular), cost effectiveness, and consumer demand.

#### Air Regulatory Update

Jared Snyder, DEC’s Assistant Commissioner for Air Resources and Climate Change and Energy, provided an update on various federal and state regulatory programs that govern emissions from the electricity sector. Mr. Snyder explained that many of New York’s standards are driven by federal requirements. He noted that New York benefits from strong federal requirements in two ways. First, New York is a “downwind” state that benefits from stringent emission requirements imposed on upwind power plants and other pollution sources; these federal requirements help New York meet its own obligations under the Clean Air Act. Second, a strong federal program levels the playing field. New York imposes stringent regulatory requirements on in-state sources, and strict federal regulations force out-of-state pollution sources to meet the same requirements.

Mr. Snyder first discussed the National Ambient Air Quality Standard (“NAAQS”) established by the Environmental Protection Agency for ozone. The 1997 ozone NAAQS (0.08 ppm) was lowered to 0.075 ppm in 2008. While most areas of the state meet these requirements, air quality in New York City and Chautauqua County (which is just downwind of Midwestern power plants) does not meet the new NAAQS. The current estimates to reach attainment show steep reductions needed throughout the Eastern US: greater than 60% reduction in Nitrogen Oxides (“NO<sub>x</sub>”) emissions (electric generation units, on- and non-road mobile vehicles, boilers, etc.) and greater than 20% reduction in Volatile Organic Chemicals. While more stringent standards for motor vehicle emission will be helpful, New York will still need to implement other reduction programs to meet these new standards. It will take six or more years to realize these reductions.

Mr. Snyder also discussed the Cross-State Air Pollution Rule (“CSAPR”), which replaces the Clean Air Interstate Rule, which was overturned by the courts and remanded to EPA for further review. The CSAPR requires states to reduce power plant emissions that contribute to ozone and/or fine particles pollution in other downwind states. New York and twenty-seven other states are covered by this rule. Since New York is downwind of states in the Midwest that have large coal and gas power plants located within their borders, enforcement of this rule is expected to positively impact the State’s air quality. Emission reductions required from 2010 levels in NYS are as follows: NO<sub>x</sub> (overall/ozone season): 7% by 2012 and 9% by 2014; sulfur dioxide (“SO<sub>2</sub>”): 22% by 2012 and 45% by 2014. Mr. Snyder advised that these more stringent standards can largely be met if power plants run emission controls that are currently in place, with a few enhancements in some instances, but which have not been utilized up until now. Mr. Snyder advised that the CSPAR rules are currently on hold due to legal challenges filed by industry and some states.

Mr. Snyder also discussed new NO<sub>x</sub> limits for large combustion sources (including electric generation unit boilers and turbines), as well as a December 2011 Mercury and Air Toxics Standards rule to reduce toxic emissions from coal- and oil-fired power plants across the country. He stated that power plants are the largest source of U.S. mercury emissions, and that the new rule requires reductions in emissions of heavy metals --mercury, arsenic, chromium, and nickel -- and several acid gases. Existing sources are given up to four years to comply. Requirements can be met by technology (scrubbers, fabric filters, etc.) and work practices. The Mercury and Air Toxics Standards rule has also been challenged in court. Mr. Snyder emphasized that because DEC’s Part 246 mercury limits for coal-fired electric generation units are more stringent than the new federal requirements, EPA’s new rule will have no effect on the state’s power sector.

Mr. Snyder also explained DEC’s obligations under the Power NY Act of 2011. DEC is required to promulgate regulations addressing environmental justice (“EJ”) issues (Part 487) and carbon dioxide (“CO<sub>2</sub>”) performance standards for new power plants (Part 251). Draft regulations were published in the State Register on January 18, 2012; comments are due March 15, 2012. Public hearings are scheduled for March 5<sup>th</sup> in Albany, March 6<sup>th</sup> in NYC and March 8<sup>th</sup> in Buffalo. Final regulations must be in place by August 4, 2012.



With regard to the Part 487 regulations, a siting application must include an environmental justice analysis if the facility may impact an EJ area. DEC's proposed regulations specify the analysis required: a cumulative impact analysis of air quality; a comprehensive and comparative demographic, economic and physical description of the impact study area; an evaluation of any significant and adverse disproportionate environmental impacts; and avoidance, minimization and offset measures if necessary.

DEC's CO<sub>2</sub> performance standards will apply to new and modified electric generating units (boilers, turbines, or stationary internal combustion engines firing gaseous and/or liquid fuel):

- New major EGUs > 25 MW that commence construction after the regulation's effective date, and
- Existing EGUs that increase capacity by at least 25 MW after the effective date of the regulations.

The regulations will set emission limits based on combined cycle natural gas and efficient simple cycle turbines. Sources not subject to a specific emission limit include biomass, waste-to-energy and gasification facilities. DEC will approve case-specific emission limits that are representative of best practices by similar sources.

Mr. Snyder then discussed the Regional Greenhouse Gas Initiative ("RGGI"), noting the following: the first compliance period (2009-11) is completed; emissions were approximately 30% below the cap; and New York invested auction proceeds to fund energy efficiency and renewable energy programs. The two primary programs funded by RGGI are the Green Jobs-Green New York and the Cleaner Greener Communities programs. Mr. Snyder advised that a study conducted by the consulting firm Analysis Group concluded that RGGI has added up to \$1.6 billion in economic value in the ten participating states over the past three years. The study also forecasts that customers will save \$1.3 billion on their electric, natural gas and heating oil bills over the next ten years as a result of energy efficiency measures funded by RGGI. The study also predicted that 16,000 jobs will be created over ten years as a result of the RGGI program.

Mr. Snyder stated that the RGGI participating states will soon undertake a review of the RGGI program, including the cap level, imports, offsets, and scope. A primary focus will be on the cap level. Modeling shows that emissions will remain well below the current cap for the foreseeable future.

Mr. Snyder also briefly discussed recent federal efforts to control greenhouse gas emissions from the electric sector. He stated that New York is pushing for some flexibility in meeting these standards, for example, using RGGI requirements to meet EPA's rules resulting in New York's power sector having to only meet one set of standards.

In response to a question from Assemblyman Cahill, Mr. Snyder confirmed that in order for various areas of the State to achieve attainment (especially NYC and WNY), upwind sources- particularly large power plants- will need to significantly reduce their emissions. Mr. Cahill

advised that he has drafted a bill that would require power lines that transport power from other states to adhere to the same requirement that power producers in New York must meet. In response to a question from Mr. Coakley, Mr. Snyder stated that DEC staff can calculate what percent of pollution in a given area comes from in-state sources and what percent emanates from sources beyond New York. Using that information, DEC can request that EPA require such out-of-state sources to decrease their emissions, thereby assisting in meeting NAAQS attainment standards in New York.

### New York Solar Study

Sarah Osgood, Program Manager for Policy and Program Development at NYSERDA, presented the results of a Solar Study conducted by NYSERDA at the direction of the Legislature in the Power New York Act of 2011. NYSERDA was directed to evaluate the costs and benefits of increasing the use of solar PV in New York State to 5,000 megawatts by 2025. Ms. Osgood reviewed NYSERDA's findings and recommendations, based on the conclusions of the technical analysis completed in the Study.

Ms. Osgood first explained that New York is a national leader in the deployment and production of renewable energy. This leadership is attributable to New York's strategic pursuit of policies designed to develop a diverse portfolio of renewable energy resources, including solar, wind, hydropower and biomass. New York's diverse portfolio approach capitalizes on the State's many renewable resources. The success of this approach is reflected by the fact that New York has developed more than 1,800 MW of renewable energy, exclusive of hydropower, more than any other state in the Northeast. Including hydropower, New York's renewable energy capacity is comparable to the entire renewable energy capacity of the other eight states in the Northeast. In a recent U.S. Department of Energy report, New York ranked fifth in the nation for the amount of installed renewable energy capacity providing electricity to the state.

Ms. Osgood next discussed the cost of achieving a 5,000 MW goal. She stated that there is significant uncertainty in estimating the cost of PV out to 2025. Experts project that the installed cost of PV by 2025 could range from \$1.4 to \$4.3 million per installed MW. This range and various assumptions about the renewal of the federal tax credit, set to expire in 2016, formed the basis of the scenarios analyzed in the Solar Study. The Low Cost scenario is based on the DOE SunShot program goal for PV cost reduction and assumes extension of the federal tax credit through 2025. The High Cost scenario is based on long-term historical trends and assumes the federal tax credit would revert to a pre-federal stimulus level following expiration of the current credit in 2016. The most likely scenario, referred to as the Base Case, is based on a survey of experts by the DOE and assumes a moderate reduction of the federal tax credit beyond 2016. The Base Case estimates \$2.5 million per installed MW for large-scale systems and \$3.1 million per installed MW for small-scale systems.

Ms. Osgood then outlined some further findings of the Study:

- The cost of achieving a 5,000 MW goal exceeds the benefits using the Base Case scenario.

- The cost of PV and the availability of federal tax credits through 2025 are the driving factors of cost in a 5,000 MW goal.
- The Low Cost scenario had a net benefit while the High Cost scenario had a net cost four times as high as the Base Case.
- In the Base Case, achieving a 5,000 MW goal would have a ratepayer impact of \$3 billion over the study period (2013 – 2049), which would equal on average a 1% impact on ratepayer electric bills. In any given year, this rate impact could be as much as 3%.
- The ratepayer impact under the Low Cost scenario would be approximately \$300 million, whereas the impact under the High Cost scenario would be \$9 billion.

Ms. Osgood next explained impacts on jobs. Modeling of the Base Case scenario found that while direct PV jobs would be created, the impact on New York’s economy as a whole would be a net negative primarily due to the ratepayer impact.

- Approximately 2,300 jobs associated directly with PV installation would be created for the installation period through 2025.
- Economy-wide jobs would be reduced by 750 through 2049 because of a loss of discretionary income that would have supported employment in other sectors in the economy.
- The Gross State Product (“GSP”) would be reduced by \$3 billion through 2049, representing an annual decrease in GSP of less than 0.1%.
- The Low Cost scenario would lead to a creation of 700 jobs economy-wide through 2049, while the High Cost scenario would lead to a loss of 2,500 jobs.

The Solar Study also examined environmental impacts. A 5,000 MW goal would yield the following environmental benefits through 2049:

- A 4% reduction in fossil fuel consumption equal to 1,100 trillion Btus.
- A 3% reduction in CO<sub>2</sub> emissions equal to 47 million tons.
- A reduction of NO<sub>x</sub>, which produces smog and acid rain, by 33,000 tons (4%); SO<sub>2</sub>, which also produces smog and acid rain, by 67,000 tons (10%); and mercury by 120 pounds (3%).

Ms. Osgood stated that the Study reviewed numerous government policies and best practices used around the world to stimulate demand for PV systems. Four specific policy options were analyzed to determine their relative rate impact to New York:

- Solar Quantity Obligation Using Tradable Solar Renewable Energy Credits (SRECS) with a Price Floor Mechanism, similar to approaches adopted in neighboring states;
- Auction for Long-Term Contracts by Electric Distribution Companies, similar to an approach adopted by California;
- Hybrid Upfront Incentives for Residential and Small Commercial & Industrial (“C&I”) with a Central Procurement Approach to Large C&I and MW-Scale Installations, similar to New York’s current Renewable Portfolio Standard approach;
- Hybrid Standard Offer Performance-Based Incentives for Residential and Small C&I and Auctions for Long-Term Contracts for Large C&I and MW-Scale Installations, similar to proposals under consideration in the State Legislature.

Ms. Osgood then presented the recommendations contained in the Study. Given the major uncertainties in PV technology cost reductions and the continued availability of federal tax credits over this time period, there is a significant range in the potential cost estimates to ratepayers of meeting a 5,000 MW goal by 2025. The magnitude and range of this cost uncertainty (\$300 million – \$9 billion) is substantial, and strongly suggests the need for a policy response and investment strategy that is both flexible and responsive. Nevertheless, even with this range of cost uncertainty, given the many potential benefits that PV has to offer and the long-term potential for lower-cost PV technology, New York State should support continued investment in the steady and measured growth and deployment of PV as part of a sound and balanced renewable energy policy. New York should strengthen such investment through continued development of policies such as net metering, sales tax exemptions and interconnection standards that could further reduce the cost of PV installation and remove barriers to reaching the targets. This strategy should also be complemented by additional efforts to reduce the balance of system costs for PV, including more streamlined permitting processes, and continued financial support for targeted research and development, workforce training and business development. Continued federal incentives will play a critical role in the magnitude and predictability of future PV prices. In addition, the SunShot goal articulated by DOE is an aggressive and meritorious goal that, if achieved, would substantially reduce PV cost and change the cost-benefit equation. New York State should strongly support continued federal incentives and aggressive federal research efforts to reduce the cost of PV to consumers.

In response to a question from Assemblyman Cahill, Ms. Osgood explained that the Study period goes beyond 2025 because PV installations in 2025 were assumed to have a 25-year lifespan and thus would provide benefits through 2049, and ratepayers are assumed to pay for the power generated by these installations throughout the life of the systems. Mr. Cahill also asked why more consideration was not given to the possibility of increased manufacturing of PV systems in New York. Ms. Osgood responded that historically about 5% of PV content is manufactured in New York, and no evidence was found that would suggest that an installation goal alone would result in growth of that percentage content. Other programs (e.g. incentives offered by Empire State Development) would have to be developed to increase manufacturing in New York. Mr. Cahill also noted that given the significant environmental benefits, investments in PV technology are justified on that ground alone. In response to a question from Mr. Coakley,

Ms. Osgood stated that Study results do not significantly change in the event energy costs increase, since the primary cost drivers are the installed costs of the technology and the availability of federal tax credits.

### Working Group Update

John Williams, NYSERDA's Director of Energy Analysis and Chair of the Energy Planning Board Working Group, then gave a status report on the activities of the Working Group.

Mr. Williams initially discussed the continuing work on the technical and issue Reports that are under development to support the Plan. In addition to Volume 1 of the Plan, which will set forth Policies and Recommendations, the Plan will consist of subject-matter chapters or reports:

- Nine reports focus on energy fuels and energy systems, including energy efficiency and renewable energy
- Nine reports focus on policy areas, including climate change, clean energy economy, security, transportation, and intergovernmental collaboration
- One report will focus on quantitative analysis results

Mr. Williams noted that the reports will share a common layout:

- Assessment and Outlook – provides current landscape/status
- Issues and Opportunities – provides forward-looking “horizon;” identify current issues and issues along the current 10 year planning period
- Suggested Recommendations regarding policies and programs that can be built into the Plan

Mr. Williams stated that the Working Group subgroups completed preliminary drafts of 18 energy and policy area reports in December 2011. These reports were reviewed by the Working Group at a series of meetings targeted to specific reports in January 2012. These meetings provided agencies with the opportunity for feedback to the subgroups as they continue to develop the report drafts. Mr. Williams noted that the Assessment and Issues sections for most of the reports were well advanced, and that attention will turn to the Recommendations development in the next phase of the reports.

Mr. Williams then explained the modeling and analyses activities being conducted by the Working Group and outside contractors. Mr. Williams identified three technical studies currently under development for the Plan:

- Energy Efficiency and Renewable Energy Resource Potential Study, which will examine the potential for integrating these resources in New York State. This study will contain:
  - 5-10-20 year forecast time horizons.

- an estimate of the Economic and Achievable potential for various efficiency and renewable technologies, wherein the Economic potential will be based on total resource cost, and the Achievable potential will take into account program design and other possible barriers to realizing the full Economic potential.
- an “all fuels/all sectors” approach to the study, examining end-use efficiency for electricity, natural gas, and petroleum uses in each of the residential, commercial, and industrial sectors. The Study will also estimate the economic and achievable potential for both customer-sited and large-scale renewable resources.

Optimal Energy is the contractor assisting the Working Group. A detailed work plan and analytical structure has been developed. Data gathering and compilation has been initiated. The Study is also seeking expert input and consultation from national laboratories.

- Electricity System Modeling Study
  - ICF International has been retained as the contractor for the Study.
  - Energy Use and Price Forecasts for end-use sectors have been completed.
  - Preliminary Reference Cases are completed and are being reviewed by the New York Independent System Operator for consistency with other planning activities.
  - Work can now begin to build sensitivities to the Reference Cases (such as variations in load or price) as well as development of policy scenarios for comparative purposes.
- Electric Transmission and Distribution Reliability Study
  - An extensive review of data sources has occurred. An interim draft report is under development, which will be based on currently available data from the 2010 Electric Reliability Performance Report. It is expected that the interim draft will be updated to include 2011 data, which will reflect the system impacts and responses associated with Hurricane Irene and other weather-related impacts.
  - It is anticipated that the draft Study will be presented to the Board in June.

#### Upcoming Board Meetings

Mr. Murray reminded the Board that the draft Plan must be issued on or before September 1, 2012. Mr. Murray suggested that the Board meet monthly between now and then, and Board members agreed. Mr. Murray also suggested a few meeting topics and asked whether there were additional topics that the Board should address prior to issuing a draft Plan. Topics Mr. Murray identified included the following: fostering the clean energy workforce; natural gas markets; transportation issues; the Electric Transmission and Distribution Reliability Study that will be issued concurrent with the draft Plan; system resiliency and energy assurance. Mr. Cahill stated that he would also like the Board to address the following topics: impacts on transmission and downstate energy needs if Indian Point is closed; hydrofracking; and the need to upgrade transmission capacity. Mr. Cahill also expressed concern about the lack of consumer

representation in utility proceedings now that the Consumer Protection Board has been folded into the Department of State, and he urged the Board to address this in the Plan.

Mr. Murray stated that NYSERDA will distribute a proposed schedule containing meeting dates and topics. The schedule will be finalized after Board members have a chance to review and comment on it.

The final agenda item was Other Business; there being none, the meeting was adjourned at approximately 3:10 p.m.

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David A. Munro, Secretary to the Board  
Deputy Counsel, NYSERDA