

NEW YORK STATE ENERGY RESEARCH AND DEVELOPMENT AUTHORITY

Minutes of the 234th Meeting

Held on April 27, 2017

Pursuant to notice and an agenda dated April 26, 2017, the 234th meeting of the New York State Energy Research and Development Authority (“Authority” or “NYSERDA”) was convened on April 27, 2017, at 1:00 p.m., in the Authority’s New York City Office, at 1359 Broadway New York, New York, and in the Authority’s Albany Office at 17 Columbia Circle, Albany, New York. The two locations were connected by videoconference.

The following Members of the Authority were present:

Richard Kauffman

Sherburne Abbott

Charles Bell

Kenneth Daly (by videoconference in Albany)

Jay Koh

John McAvoy

Gil Quiniones

Mark Willis

Elizabeth W. Thorndike, Ph. D.

Members Basil Seggos, Jigar Shah and Matthew Driscoll were unable to attend.

Also present were John B. Rhodes, President and CEO; Janet Joseph, Vice President for Technology and Strategic Planning; Jeffrey J. Pitkin, Treasurer; Noah C. Shaw, General Counsel and Secretary; Amber Sisson, New York Power Authority; Michael Bailey; Julia Battista, Environmental Advocates of New York; Marie French, reporter for Politico; and various other staff of the Authority.

Mr. Kauffman called the meeting to order and noted the presence of a quorum. He stated that a meeting notice and agenda were mailed to the Members on April 14th, 2017 and to the press on April 26, 2017. The Chair directed that a copy of the notice and agenda be annexed to the minutes of the meeting.

Before turning to the formal agenda, John Rhodes, the Authority's President and CEO, provided the Members with an update on Authority operations.

The Chair indicated that the first item on the agenda concerns an executive session to discuss the employment history of a particular person.

Resolution No. 1482

RESOLVED, that pursuant to Section 105 of the Public Officers Law, the Members of the New York State Energy Research and Development Authority shall convene in executive session on April 27, 2017, for the purpose of discussing the employment history of a particular person.

The Board took no action during the executive session. At the conclusion of the executive session, the Chair reconvened the meeting in open session.

Mr. Kauffman indicated that the next item on the agenda was a report from the Governance Committee ("GC") by the GC's Chair, Sherburne Abbott. Ms. Abbott reported that the GC had met earlier in the day and a quorum was present throughout.

Ms. Abbott indicated that the GC met in private session to discuss the results of the Annual Confidential Board Member Performance Evaluation Report ("Report"). Ms. Abbott added that the results and any recommendations made by the GC will be presented to the Board at its June 2017 meeting.

Ms. Abbott stated that next, the GC received a report from General Counsel and Secretary Noah Shaw regarding the GC Charter. Ms. Abbott stated that pursuant to the Public Authorities Accountability Act of 2005, each of the Authority's Committees adopted Charters setting forth each Committee's responsibilities. Each Committee is responsible for periodically reviewing its Charter and determining what, if any, amendments need to be made.

These recommendations will then be presented to the full Board for approval at its June 2017 meeting. Ms. Abbott stated that Management is not recommending any changes to the GC Charter at this time.

Next, Ms. Abbot indicated that Mr. Shaw presented an item on an updated Conflict of Interest Policy for Authority employees. Mr. Shaw advised the GC that the proposed modification adds language to the policy specifically addressing the treatment of information that is labeled confidential or proprietary trade secret as well as information that is in the Authority's possession under a non-disclosure agreement.

The GC unanimously recommended approval of the updated Conflict of Interest Policy for Authority employees.

Mr. Kauffman added that this is not a result from any problems or issues that have arisen. Instead, this amendment will clarify how the Authority handles information subject to a non-disclosure agreement.

Mr. Shaw added that the amendments not only clarify, but also put in writing how employees should treat this kind of information. Mr. Shaw explained that this is not only a matter of contracting law, but is also a matter of employment terms and conditions.

Whereafter, upon motion duly made and seconded, and by unanimous voice vote, the Members adopted the following resolution.

Resolution No. 1483

RESOLVED, that the revised conflict of interest policy and code of conduct for Authority employees, as presented at this April 27, 2017 meeting, is adopted and approved.

The Chair indicated that the next item considered by the GC was a proposed salary increase for the Officers. Ms. Abbott stated that in accordance with the Public Authorities Law, the Members are required to approve the compensation of Officers, including salary increases. Historically the Authority has provided its employees with benefits comparable to those provided to Management Confidential employees by the State.

Ms. Abbott explained that recently, the New York State Division of Budget released a budget bulletin providing guidelines for the payment of a 2% General Salary increase to Management Confidential employees and other unrepresented employees in the Executive Branch, retroactive to April 1, 2016, as well as a 2% Parity Increase and a 2% General Salary increase for those same employees effective April 1, 2017.

Ms. Abbott indicated that the Members are asked to approve the same percentage salary increase for the President and CEO, Vice President for Innovation and Strategy, the Treasurer, and the General Counsel.

Ms. Abbott stated that the fiscal year 2017-18 Budget approved by the Members in January 2017 did not include funding for these salary increases, as they were not known at that time. A revised Budget for Fiscal Year 2017-18 will be presented to Members for consideration at the September 2017 meeting and will include the salary increases for staff and Officers authorized through these actions.

The GC unanimously recommended approval of the salary increase for officers.

Whereafter, upon motion duly made and seconded, and by unanimous voice vote, the Members adopted the following resolution.

Resolution No. 1484

RESOLVED, that the proposed 2% salary increase retroactive to April 1, 2016 and the 4% salary increase effective April 1, 2017, payable as appropriate to the President and CEO, the Vice President for Innovation and Strategy, the Treasurer and Internal Control Officer, and the General Counsel and Secretary is hereby approved, subject to the issuance of a Budget Bulletin by the New York State Division of the Budget.

Mr. Kauffman indicated that the next item on the agenda is a resolution approving the disposal of real property at the Saratoga Technology + Energy Park (“STEP”). Mr. Shaw explained that the Authority owns, manages, and assists in the development of STEP, and has done so since 1975.

Mr. Shaw stated that Management recommends that the Members authorize the Authority to enter into an agreement with the New York State Office of General Services (“OGS”), which will permit the Commissioner of OGS to facilitate NYSERDA’s disposal of all of the Authority’s right, title and interest in STEP, with no use restrictions, via a public auction process. This recommendation is in compliance with Section 2896(4) of the Public Authorities Accountability Act, and includes the requirement to obtain an updated appraisal, publicly advertise for bids and obtain at least fair market value. In addition, under this process, the Authority would be permitted, in its sole discretion, to reject all bids if it determines that it is in the public interest to do so.

Additionally, Mr. Shaw indicated that the resolution requires that the net proceeds from the sale of STEP be directed to the Authority’s clean energy programs and initiatives.

Mr. Shaw explained that the STEP property is comprised of approximately 280 acres in Malta, NY. The current uses of the site represent major progress over the course of the Authority’s ownership and management.

Mr. Shaw indicated that in the 1960s, the New York State Atomic and Space Development Authority (a predecessor of the Authority) acquired from the federal government a total of 445 acres in the Town of Malta, which had been known as the “Malta Test Station”. This land had been used by the federal government for rocket testing, space research and related activities. 280

of those acres now comprise the current STEP parcel. In 1975, when the Authority was created, the Authority assumed ownership of the property and changed the site's mission to energy research and development.

Mr. Shaw stated that in 2001, after the Authority had completed significant remediation activities to mitigate hazardous substance contamination, the Authority's Board approved plans to develop the property as a technology park devoted to clean energy, energy efficient, and environmental technologies.

Mr. Shaw explained that since 2001, the Authority has served as the owner and landlord of STEP. The Authority does not conduct any of its own activities at STEP, but rather enters into ground leases, provides the infrastructure, and private developers improve and develop individual lots. An appraisal obtained in July 2015 of the property showed a value of approximately \$9 million.

Mr. Shaw reported that after internal review, the Authority has concluded that management of the STEP site is not a core component of the Authority's current overall mission and is not within the core competency of existing staff. Management have reviewed several options for future development at STEP, including revising the Authority's management of the site, engaging a master developer to carry out activities at the site, or selling the site via a public auction process by utilizing OGS as permitted under the Public Authorities Accountability Act.

After this review, Mr. Shaw indicated that Management has determined that a sale of STEP via a public auction through OGS's process, with the net proceeds from the sale being deployed to support the Authority's clean energy mission, is in the Authority's best interests on behalf of the people of the State.

As part of management's due diligence regarding the proposed sale of STEP, Mr. Shaw explained that Management sought the analysis and opinion of an outside law firm – Harris Beach, LLC – with respect to the appropriateness of management's determination that the sale of STEP via a public auction utilizing the OGS process without any use restrictions is in compliance with

the Authority's enabling statute and the legal requirements found in the Public Authorities Accountability Act.

Mr. Shaw explained that the Authority's enabling statute provides the Authority with the power to terminate contracts and take other actions with respect to STEP. However, in order for the Authority to authorize the sale of STEP, the Members must make a determination that the sale of STEP is necessary or appropriate to either (i) further the public interest in safe, reliable, and economical energy supplies or (ii) to further the protection of public health and safety and the environment.

Mr. Shaw indicated that Management recommends that the Members make this determination based on the proposal that the net proceeds of the sale of STEP be directed to the Authority's clean energy programs, which (i) furthers the public interest in safe, reliable and economical energy supplies and (ii) furthers the protection of public health and safety and the environment.

Specifically, Mr. Shaw stated that the Authority expects to redirect the net proceeds of the STEP sale into Regional Greenhouse Gas Initiative ("RGGI") programs –which aim to reduce harmful carbon emissions.

In response to an inquiry from Mr. Koh, Mr. Shaw explained that there will be additional review going forward through the OGS process. OGS will engage appraisers and Management will be working with real estate lawyers and consultants as the Authority works through the due diligence process.

In response to an inquiry from Mr. Koh, Mr. Shaw indicated that to make a determination, the Members need to find that the sale is appropriate or necessary to serve the public purposes, which are the creation of clean energy.

In response to an inquiry from Mr. Koh, Mr. Shaw stated that the materials provided to the Members in their meeting package set forth the basis on which the Members may make the determination that this transaction serves the purposes outlined in the statute.

Mr. Daly complimented Management for the review and the strong governance around this disposition of this property.

Whereafter, upon motion duly made and seconded, and by unanimous voice vote, the Members adopted the following resolution.

Resolution No. 1485

RESOLVED that pursuant to and in accordance with Section 1854(6)(a) of the Public Authorities Law, the Authority determines that in furtherance of the public's interest in safe, reliable and economical energy supplies, it is necessary or appropriate to dispose of all of the Authority's right, title and interest in the real and personal property which constitutes the Saratoga Technology + Energy Park; and it is further

RESOLVED that the net proceeds from the sale of all real and personal property located at Saratoga Technology + Energy Park shall be redirected to mission aligned Authority programs and initiatives and that such redirection of net proceeds furthers the public interest in safe, reliable and economical energy supplies; and it is further

RESOLVED, that the President and Chief Executive Officer or his designee is hereby authorized, pursuant to Public Authorities Accountability Act Section 2897(4), to enter into an agreement with the New York State commissioner of general services under which the commissioner may dispose of all of the Authority's right, title and interest in the real and personal property which constitutes the Saratoga Technology + Energy Park in compliance with the requirements of the Public Authorities Accountability Act, including the requirements to obtain at least fair market value and publicly advertise for bids, and under such other terms and conditions as agreed to by the President and Chief Executive Officer or his designee on behalf of the Authority and the commissioner of general services; and it is further

RESOLVED that the President and Chief Executive Officer or his designee is hereby authorized on behalf of the Authority to designate such agents, to take such actions and to incur such expenses for goods or services as are incidental and necessary and/or appropriate to the offering of the real and personal property which

constitutes the Saratoga Technology + Energy Park for sale, including, but not limited to, obtaining an independent appraisal of the value of said real and personal property; and it is further

RESOLVED that pursuant to and in accordance with Public Authorities Accountability Act Section 2897(6)(b)(iii), the President and Chief Executive Officer or his designee may reject all bids (including the highest bid) received through the public bid process established pursuant to the agreement entered into by and between the Authority and the commissioner of the office of general services irrespective of the fact that the highest bid represents the fair market value of said real and personal property, if such rejection is determined to be in the best interest of the Authority and the public interest to do so; and it is further

RESOLVED that the President and Chief Executive Officer or his designee is hereby authorized to approve any proposed purchase and sale agreement approved for use by the commissioner of general services for the sale of real and personal property located at Saratoga Technology + Energy Park, with such changes thereto as the President and Chief Executive Officer or his designee may deem necessary and/or appropriate; and it is further

RESOLVED that the President and Chief Executive Officer or his designee is hereby authorized, but is not required, to execute and deliver any purchase and sale agreement as hereinbefore described on behalf of the Authority and sell, transfer and convey the real and personal property located at Saratoga Technology + Energy Park, and all of the Authority's right, title and interest therein, on such terms and conditions, including, but not limited to, the purchase price (provided such purchase price is at least equal to fair market value), as he deems necessary and/or appropriate and in furtherance of the public's interest in safe, reliable and economical energy supplies, to perform all of the Authority's covenants and obligations under any such purchase and sale agreement, to execute and deliver such instruments, documents, agreements, certificates, affidavits, authorizations, consents and/or returns, and to take such further action as he deems necessary and/or appropriate to effectuate the transactions contemplated by any such purchase and sale agreement and/or the purposes of this resolution; and it is further

RESOLVED that the execution, delivery and performance on behalf of the Authority by the President and Chief Executive Officer or his designee of any and all of the foregoing shall be conclusive evidence of his approval and the approval of the Board of Directors, and the taking of any and all acts as may be necessary, advisable or proper to complete the transactions and/or matters herein authorized, on such terms and conditions as he heretofore has deemed, and may now or at any time hereafter deem, acceptable, shall be conclusive evidence of his approval and the approval of the Board of Directors; and it is further

RESOLVED that any acts of the President and Chief Executive Officer or his designee which acts would have been authorized by the foregoing resolutions except that such acts were taken prior to the adoption of these resolutions are hereby severally ratified, confirmed, approved and adopted as acts in the name of and on behalf of the Authority.

Mr. Kauffman stated that the next item on the agenda is resolution commending Dr. Thorndike. Mr. Kauffman stated that it is a bitter sweet moment and acknowledged that this is going to be Dr. Thorndike's last meeting. The Chair stated that when Dr. Thorndike indicated some months ago that she wanted to move on at the end of this term, he reluctantly agreed. Mr. Kauffman was honored to read a resolution into the record commending Dr. Thorndike, though the resolution is just a shadow of the impact that Dr. Thorndike has made on the Authority and broadly on energy and environmental policy and action in the State.

Whereafter, upon motion duly made and seconded, and by unanimous voice vote, the Members adopted the following resolution.

Resolution No. 1486

WHEREAS, Elizabeth D. Thorndike, Ph.D., served with distinction as a Member of the Authority for twenty years, including twenty years as a member of the Waste and Facilities Management Committee, including eighteen years as its Chair, and twenty years as a member of the Program Planning Committee; and

WHEREAS, Dr. Thorndike's tenure was marked by a constant and reliable dedication to furthering the mission of the New York State Energy Research and Development Authority, including efforts to ensure New York's continued national prominence in providing innovative solutions to State energy issues, as well as providing guidance regarding the stewardship of and litigation involving the Western New York Nuclear Service Center; and

WHEREAS, Dr. Thorndike's leadership and expertise helped to ensure the proper management and oversight of the Authority's nuclear and radioactive waste matters; and

WHEREAS, Dr. Thorndike's focus on identifying innovative approaches to preserving and protecting New York State's environment was invaluable to the Authority in furthering its Mission and led her to found the Center for Environmental Information as well as serve as a Commissioner of the Adirondack Park Agency; and

WHEREAS, Dr. Thorndike led efforts by the Members and staff to further enhance the Authority's research and development programs and to enhance the Authority's use of metrics to improve transparency and performance; and

WHEREAS, the Members of the Authority, assembled on this twenty-seventh day of April, two thousand seventeen, have unanimously voted to commend Dr. Thorndike for her distinguished service to the People of the State of New York and her contributions to the Authority and to memorialize that commendation;

NOW, THEREFORE, the Members of the New York State Energy Research and Development Authority commend Elizabeth D. Thorndike, Ph.D., and express their deepest appreciation and respect for her dedicated and distinguished service on behalf of the Authority.

Dr. Thorndike thanked the Members for their recognition. In February of 1979, Dr. Thorndike was nominated by then Governor Hugh Carey and confirmed to serve as an at-large Member of the Authority. Later in the Fall of 1979 Governor Carey nominated her to serve as one of three Park Commissioners of the Adirondack Park Agencies. Until 1980, Dr. Thorndike served in both posts. She continued to serve on the Independent Regulatory and Planning Agency for nearly 16 years, including 8 years during that time as a Member of Governor Mario Cuomo's Environmental Advisory Board. In 1997, Dr. Thorndike was again nominated to serve on the Authority in the environmental slot, and had the pleasure and the challenge of serving under six governors.

Dr. Thorndike stated that she made a personal decision last summer to wind up her time with the Authority when her present term expired on April 1, 2017. Dr. Thorndike is only the second person to serve in the environmental slot; her predecessor was David Sive, widely acclaimed father of environmental law. Dr. Thorndike stated that it has been a pleasure to serve as Chair of the Waste and Facilities Management Committee for much of her tenure and with so many distinguished Chairs from James Larocca to Richard Kauffman; outstanding board members; exceptional Presidents from Jack White to John Rhodes; and exceptional staff.

Dr. Thorndike commented that the waste is radioactive at the facility is West Valley and hopes that her legacy in this small but vital public policy initiative will be the strong adherence of the Authority to maintaining a healthy environment and an indispensable foundation for a thriving economy. Given the success of the Authority's annual gatherings with representatives within the environmental community, Dr. Thorndike urges the Members and staff to continue to ensure every opportunity to inform and engage the members of the public as they are critically important to implementing the Authority's mission and vision on a broad scale.

Dr. Thorndike concluded by stating that the State is faced with challenges from Washington, D.C., but as others have noted, the impetus for real progress will come from the local level, including the States, cities, towns, as well as, the scientific, civic, environmental, and business communities that recognize the threats and have the willingness to collaborate from their own spheres. Dr. Thorndike is thankful for the opportunity to serve, looks forward to new activities that she has undertaken, and offered warm wishes to each of the Members as they continue to pursue the Authority's significant mission.

Mr. Kauffman stated the next items on the agenda are resolutions commending Jigar Shah and Audrey Zibelman for their service to the Authority.

Whereafter, upon motion duly made and seconded, and by unanimous voice vote, the Members adopted the following resolution.

Resolution No. 1487

WHEREAS, Jigar Shah served with distinction as a Member of the Authority for three years, including three years as a member of the Audit and Finance Committee and the Program Planning Committee; and

WHEREAS, Mr. Shah's tenure was marked by a constant and reliable dedication to furthering the New York State Energy Research and Development Authority's continued implementation and delivery of comprehensive and collaborative Statewide programs that improve the energy, environmental, and economic wellbeing of the People of the State of New York; and

WHEREAS, Mr. Shah's leadership was instrumental in designing and providing guidance for implementation of the NY-Sun initiative, as well as providing guidance and insight in the furtherance of the Authority's efforts to establish a self-sustaining market for solar photovoltaic technologies in New York State; and

WHEREAS, Mr. Shah's consistent leadership has helped improve the Authority's financial oversight and programmatic efforts; and

WHEREAS Mr. Shah's dedication to the Authority and his advice and guidance have furthered the development of the Authority's programs that improve the energy, environmental, and economic wellbeing of the People of the State of New York; and

WHEREAS, Mr. Shah's insights have been instrumental in advancing the Authority's work in assisting businesses in the clean energy market; and

WHEREAS, the Members of the Authority, assembled on this twenty-seventh day of April, two thousand seventeen, have unanimously voted to commend Mr. Shah for his distinguished service to the People of the State of New York and his contributions to the Authority and to memorialize that commendation;

NOW, THEREFORE, the Members of the New York State Energy Research and Development Authority commend Jigar Shah and express their deepest appreciation and respect for his dedicated and distinguished service on behalf of the Authority.

Whereafter, upon motion duly made and seconded, and by unanimous voice vote, the Members adopted the following resolution.

Resolution No. 1488

WHEREAS, the Honorable Audrey Zibelman, Chairwoman of the Public Service Commission, served with distinction as a Member of the New York State Energy Research and Development Authority for four years; and

WHEREAS, Chairwoman Zibelman's leadership and insight were instrumental in coordinating and harmonizing the environmental and energy-related missions and work of the Department and the Authority; and

WHEREAS, Chairwoman Zibelman's tenure was marked by close collaboration in the development of the New York State Clean Energy Fund and other efforts to maximize the environmental, energy, and economic benefits to the People of the State of New York; and

WHEREAS, the Members wish to recognize Chairwoman Zibelman for her service and diligence as a Member of the Authority and to memorialize her vision, dedication, and commitment to the Authority and the advancement of its mission;

NOW, THEREFORE, BE IT RESOLVED, that the Members of the New York State Energy Research and Development Authority, assembled on this twenty-seventh day of April, two thousand seventeen, commend the Honorable Audrey Zibelman, and express their deepest appreciation and respect for her contributions to the Authority and the betterment of the State of New York.

The Chair stated that the next agenda item is a resolution appointing Kenneth Daly to the Audit and Finance Committee and appointing Charles Bell as the Chair of the Waste and Facilities Management Committee. He indicated that he has spoken to both Members and they are willing to serve in these capacities. Mr. Kauffman stated that the Authority will benefit greatly from their time and attention to the important work of the Authority.

Whereafter, upon motion duly made and seconded, and by unanimous voice vote, the Members approved the appointment of Kenneth Daly to the Audit and Finance Committee and the appointment of Charles Bell as the Chair of the Waste and Facilities Management Committee.

Mr. Kauffman indicated that the next item on the agenda was the periodic procurement contracts report. Mr. Kauffman called on Cheryl Glanton, Director of Contract Management, to discuss this item.

Ms. Glanton stated that the Members are requested to adopt a resolution approving a periodic procurement contracts report, covering the period December 16, 2016 through March 15, 2017. The report summarized 122 procurement contracts exceeding \$5,000 that were initiated or modified during the period. These contracts total approximately \$21 million. In addition, for your approval the new contracting guidelines, there were 3 competitive selected program contracts totaling \$7 million dollars and 4 non-competitively contracts for \$6 million that we will also ask your approval for. Over 96% of the procurement contracts were competitively selected, and 93%

of the dollars committed resulted from competitive procurement. The report also summarizes 42 procurement contracts that are expected to be executed by the Authority and that have a period of expected performance in excess of one year. These contract actions total approximately \$89 million.

Ms. Glanton stated that in addition, the Members were provided with a periodic report on the Authority's compliance of Article 15-a of the Executive Law. Of the 39 contracts their subject to Article 15-a which were initiated or modified during the reporting period, 38% of the total number of contracts were awarded certified MWBE firms, representing 32% of the total contracted amounts you may note that the total contracted amounts still higher that our goal of 30% is lower than in previous quarters. One reason is the Authority's new full service marketing firm that is still undergoing their NYS certification process their nationally certified but not certified in the state. As soon as that happens the Authority's % will go up significantly.

Next, Ms. Glanton explained that the Members were provided a report on the Authority's program contract activity. There were 7,700 program contracts executed exceeding \$5,000 that were initiated during the period. Of these contracts 99% were competitively selected, and 96% of the dollars committed were from competitive selections. The breakouts by Market Focus, Regional Economic Development Council, County, and Electric Utility are included, including a map representation of the program contracts executed during the period.

At the conclusion of her report, Ms. Glanton indicated that John Rhodes, President and CEO of the Authority, would discuss two specific Authority projects.

Mr. Rhodes stated that the Authority is developing two research and development projects. One project is with the Power Electronics Manufacturing Consortium ("PEMC") at State University of New York Polytechnic University's College for Nano-scale Science and Engineering ("CNSE") and the other is with Brookhaven National Laboratory ("BNL"). These research projects will explore the frontiers of energy material science – and seek to make technological advances in electrical energy storage and power electronics.

Mr. Rhodes explained that the first project supports research and development activities at PEMC, a state-industry-academic partnership housed at CNSE. The total contract amount is \$23 million. The goal of PEMC is to foster standardization, drive quality improvement of silicon carbide (“SiC”) substrates and power devices, and improve manufacturability of larger SiC wafers. These efforts are expected to drive down cost, contribute to maturing novel power electronics technology, and reduce time to market for a broader range of power electronic devices.

Mr. Rhodes indicated that PEMC is focusing on SiC semiconductor material – so called wide-band gap materials. These semiconductor materials have unique properties which result in significant reduction in energy loss and higher performance compared to conventional solid-state electronics used in control and conversion of electric power. Applications are wide ranging from inverters (for solar and wind power), to electric vehicles, motors, energy storage, and a variety of electric power transmission applications. According to the U.S. Department of Energy (“DOE”), these materials could reduce power losses in the transmission of electricity by up to 70%.

The Chair added that the work at SUNY Poly is specifically focused on driving down costs to contribute to the maturing technology level of this novel electronic solution and reduce plan market for a broader range important power electronic devices.

Mr. Rhodes continued his report by stating that PEMC is a unique collaboration comprised of GE Global Research and Development working with CNSE. CNSE is one of the few places in the world capable and dedicated to the research, development and manufacturing of advanced wide-bandgap semiconductor materials and power devices on larger wafer sizes. In addition, PEMC will support an open SiC fabrication facility, for use by multiple device makers.

Mr. Kauffman commented that these wide-bandgap semiconductors promise dramatic transformation in the intelligent routing of electricity worldwide, as well as enabling additional efficiency and performance benefits for a wide range of end-use power applications.

Mr. Rhodes explained that the Authority’s investment in PEMC will further encourage funding from additional corporate members and sponsors across multiple disciplines. It will also

continue to advance the State as the leader in power electronics semiconductor technology and a leading innovator in improving energy efficiency, enabling alternative energy production and distribution, and reducing the carbon foot-print of electricity utilization.

Mr. Rhodes stated that this is a project that is mission aligned. It is meritorious, and it meets the non-competitive standard. Staff has third party opinions that confirm the Authority's own judgement that these projects are essential and unique. The proper process has been followed in both the awarding and arriving at a justification of arriving of the non-competitive award of the contract.

Next, Mr. Rhodes indicated that the purpose of the BNL project is to build an experimental station that will use high-energy x-rays ("HEX") to advance the understanding of energy storage materials and batteries. In 2015, BNL completed construction of the National Synchrotron light source. This facility is the world's most powerful photon microscope for high-impact research and development. The Authority will be providing \$25 million to support this project.

Mr. Rhodes explained that the HEX project will build a dedicated experimental facility for energy storage research at the National Synchrotron Light Source. The HEX beams enable analyses at the atomic level, allowing researchers to see how materials in systems, such as batteries, operate under real working conditions. This "in-operando" atomic view is critical to optimizing performance and lifetime of energy storage devices. Extending the lifetime of batteries under a range of cycling conditions is a core need in battery research, and to support broader applications and use for batteries in energy markets. This facility will be an extremely valuable experimental resource in that endeavor.

Mr. Rhodes added that another important feature of this federal-state partnership is that 40% of the facility operating time will be available to State companies to test battery materials and individual components, helping to accelerate an emerging clean energy sector in the State.

Mr. Rhodes indicated that the HEX project would leverage DOE's billion-dollar investment and \$120 million/year operating budget for the National Synchrotron light source.

As stated above with the first project, Mr. Rhodes stated that this is a project that is clearly mission aligned. It is meritorious, and it meets the non-competitive standard. Staff have third party opinions that confirm the Authority's judgement that these projects are essential and unique. The proper process has been followed both in the awarding of and arriving at a justification of the non-competitive award of the contract.

Mr. Rhodes stated that advancement of battery technology will provide many benefits for the State's clean energy systems, including a greater ability to integrate renewable energy into the grid, reductions in carbon emissions, and more efficient storage and use of energy.

Additionally, Mr. Rhodes reported that staff have sought independent outside technical review of both proposals and the unique merits and capabilities of these teams were confirmed.

Next, Mr. Rhodes provided the Members with a summary of the funding structure for each of the projects. He explained that the PEMC project is proposed to be funded with \$6.3 million from research and development Article 18-a assessment funds and \$16.7 million in Clean Energy Fund Innovation and Research funds. The BNL HEX Beamline project is proposed to be funded with \$10 million from State appropriation funds to be sub-allocated to the Authority and \$15 million from RGGI funds, with a contingency.

Mr. Rhodes added that this will require that the Authority review its RGGI revenue as well as some recent changes in the RGGI markets. Given revised RGGI revenue projections based upon recent auction prices, staff are recommending that RGGI funds used to support the BNL HEX Beamline project would be contingent upon demonstration of sufficient RGGI funds going forward.

Mr. Rhodes stated that if this situation were to materialize, the Authority will re-assess program funding commitments; consult with the Members and its partners in state government; and effectuate mitigation measures to address any shortfalls in revenues prior to advancing any additional RGGI program funding commitments for approval.

Mr. Rhodes concluded by stating that staff will continue to monitor RGGI revenues and manage funding commitments to ensure that the Authority maintains the ability to cover its funding obligations.

In response to an inquiry from Mr. Kauffman, Mr. Pitkin stated that an amendment to the RGGI Operating Plan will likely be presented in January 2018.

Mr. Rhodes stated that Management will continue to monitor all revenues and manage all funding commitments to ensure the Authority broadly maintains the ability to cover commitments, and with respect to these two contracts it is Management's view that the Authority is not adding to the RGGI commitments. Management recommends approving these two contracts based on the fact that these projects are squarely aligned with the Authority's mission, are meritorious, and follow a good process in arriving at the non-competitive justification.

Mr. Willis commended Management for appreciating the risks of increasing the Authority's commitments and modeling this in a contingent way.

Mr. Koh noted that the process described by Mr. Rhodes includes a specific recommendation that these projects are mission aligned and meritorious, and that these conclusions are supported by third party reviews of Management's determination. He added that RGGI forecasting is a set of estimates based on a variety data inputs, Mr. Koh indicated that Management made a very wise decision to think about a contingent funding source in the event of the RGGI funding not coming out as anticipated.

Mr. Daly noted that the Members were briefed on the revenue streams and that Management has taken a very prudent approach to try to align the revenues and expenses as the Authority moves forward.

Mr. Kauffman indicated that counsel's office has compared the lists provided by Members of entities with which each Member is associated and which he or she believes may enter into

contracts with NYSERDA to the list of contracts in the Periodic Contracts Report for contracts which have been, or are expected to be, executed and which do have, or are expected to have, a period of performance in excess of one year. Counsel's office reports just one potential conflict. Specifically, the Authority has entered into or anticipates entering into contracts with Cornell University, identified by Elizabeth Thorndike.

Ms. Abbott stated that in addition to the process which was excellently done, the presentation of these contracts has improved in ways that is understandable, useful, and allows the Members to see a long-term process of watching contracts with goals.

In response to an inquiry from Mr. Willis, Ms. Glanton agreed to provide the Members with a year- to-year over view of the progression of the Authority's 15-a qualified contracts. She indicated that presenting this information on quarterly basis would not present an accurate picture as the execution of contracts varies from quarter to quarter.

Whereafter, upon motion duly made and seconded, and by voice vote of the Members present, the following resolution was passed. Dr. Elizabeth Thorndike, abstained from voting.

Resolution No. 1489

RESOLVED, that the Periodic Contracts Report, covering the period December 16, 2016 through March 15, 2017, as presented at this meeting, including but not limited to the contracts identified therein which have been, or are expected to be, executed and which do have, or are expected to have, a period of performance in excess of one year, is hereby approved in accordance with Public Authorities Law Section 2879.

The Chair stated that the next item on the agenda is proposed amendments to the Authority's By-Laws, presented by the Authority's General Counsel and Secretary, Noah Shaw.

Mr. Shaw explained that the Members are requested to adopt a resolution amending Sections 5 and 6 of Article VI of the By-Laws. The proposed resolution would allow the President of NY Green Bank ("Green Bank") to delegate, upon absence or disability, his or her signing authority to Green Bank's Chief Operating Officer or a Green Bank Managing Director for

Investment and Portfolio Management, within certain parameters. Specifically, the Green Bank President will be permitted to delegate his or her signing authority to the Chief Operating Officer of Green Bank or one or more Green Bank Managing Directors for Investment and Portfolio Management, provided that such delegee is not the Managing Director assigned to the subject transaction.

Mr. Shaw added that the proposed amendments also update the references to “New York Green Bank” in the By-Laws to “NY Green Bank,” which is the current naming convention used in externally-available materials.

In response to an inquiry from Mr. Kauffman, Mr. Griffin explained that there are instances when documents need to be amended just prior to a deal closing. Though Green Bank staff try to be available around the clock, there are occasions when he is not available for these last-minute changes. These amendments allow Mr. Griffin, as Green Bank President, to designate an authorized signatory in his absence.

In response to an inquiry from Mr. Kauffman, Mr. Koh indicated that the ability delegate execution of documents is a reasonable industry practice as long as Green Bank segregates the risk management function from the underwriting function.

Peter Costello, Managing Director of Legal and Regulatory Affairs for Green Bank added that, as a matter of internal controls, both he as the legal function and Brian Lee as the compliance and risk function as well as the transacting teams a certificate that memorializes the document to be signed in accordance with the approval by the investment authority.

In response to an inquiry from Mr. Willis, Mr. Griffin stated that the delegation would occur during a specified time and not be open indefinitely.

In response to an inquiry from Mr. Willis, Mr. Shaw explained that the By-laws already provide for the Authority’s President and CEO to delegate authority around certain matters. These

amendments follow that same model for the Green Bank President. The delegation would be executed prior to the absence of the Green Bank President.

Whereafter, upon motion duly made and seconded, and by voice vote of the Members present, the following resolution was passed.

Resolution No. 1490

RESOLVED, that the amendment to the Authority's By-laws, amending Sections 5 and 6 of Article VI, as presented at this April 27, 2017 meeting, is hereby approved by the Board.

Mr. Kauffman stated that the next item on the agenda was a report from the Program Planning Committee (the "PPC"). Mark Willis, Chair of the PPC, presented this item. Mr. Willis reported that the PPC met just prior to the Board meeting, and a quorum was present throughout the meeting.

Mr. Willis stated that Mr. Shaw presented proposed amendments to the PPC Charter. The proposed amendments are of a housekeeping nature and would serve to more appropriately reflect references to the Authority's Strategic Program Plan, as well as to more accurately reflect the Authority's program area initiatives and portfolios. Based upon the presentation and discussion, the PPC recommends that the full Board adopt the resolution regarding the proposed amendments to the Program Planning Committee Charter, as will be presented to the full Board at the June 2017 Board meeting.

Next. Mr. Willis indicated that the PPC received two presentations that were highly informative, and forward looking. The first presentation was from Jason Doling, Program Manager for Energy Storage on the Authority's recent market development activities. Mr. Doling presented recent activities in the context of the global arena as well as the benefits of the rate payer savings, possibly for renewal and forces in economic growth. Mr. Doling also presented specific theories being undertaken by the Authority under the Clean Energy Fund, which include technology and product development activities, reduction of the soft costs associated with these efforts value stacking, and pilot programs that strive to reduce peak demand, reduce greenhouse

gases, and integrate renewable technologies. Mr. Doling also described a forthcoming energy storage scoping study.

Mr. Willis continued by reported that the second presentation to the PPC was from Donovan Gordon, Director of Renewable Heating and Cooling on recent Authority activity in this area. Mr. Gordon presented information on the benefits of renewable heating and cooling particularly in terms of greenhouse gases emission reduction, as well as information on renewable heating and cooling trademark published in February 2017. 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.

Mr. Kauffman, indicated that the next item on the agenda was a report on items considered by the Audit and Finance Committee ("A&FC") by the A&FC Chair, Jay Koh.

Mr. Koh stated that the A&FC met earlier in the day, and a quorum was present throughout the meeting.

Mr. Koh reported that the A&FC heard a detailed presentation from KPMG. LLP on their proposed process for conducting the fiscal year 2016-17 independent audit of the Authority's financial statements and NY Green Bank's financial statements. The A&FC was able to ask questions and was satisfied with the proposed procedures for conducting the audit. The A&FC thought the approach was reasonable and that the end product would meet the requirements of the Public Authority Accountability Act and the State Comptroller's regulations, including the delivery of all required opinions.

Mr. Koh stated that the A&FC also received a report from the Authority's Director of Internal Audit, Mark Mitchell on the proposed Internal Audit Plan for Fiscal Year 2017-2018. Following a discussion, the A&FC voted to approve the 2016-2018 Audit Plan.

Next, Mr. Koh indicated that the A&FC received a report from Mr. Mitchell on his recent activities. Mr. Mitchell discussed the results of a recently completed audit. The A&FC had a discussion and was pleased with the results of the audit.

Lastly, Mr. Koh explained that the A&FC considered proposed amendments to the A&FC Charter. Pursuant to the Public Authorities Accountability Act of 2005, each of the Authority's Committees adopted Charters setting forth each Committee's responsibilities. Each Committee is responsible for periodically reviewing its Charter and determining what, if any, amendments need to be made. The A&FC will be recommending changes to the A&FC Charter that will be presented to the full Board for approval at its June 2017 meeting.

At this time, the Chair had to leave the meeting for a previous engagement. Mr. Quiniones, Vice-Chair of the Authority conducted the remainder of the meeting.

Mr. Quiniones indicated that the next item on the agenda was a report on Green Bank from Alfred Griffin, President of NY Green Bank. Mr. Griffin provided the Members with a status report on the activities of the Green Bank, including recently closed transactions.

In response to an inquiry from Mr. Rhodes, Mr. Griffin indicated that Green Bank has several interesting transactions across various fronts, but staff are spending a tremendous amount of time on Community Distributed Generation ("CDG"). Mr. Griffin explained that there is going to be a real need for Green Bank to get some of these transactions up and running over the coming quarters.

Mr. Koh commented that the PPC discussed whether there was opportunity for both the Authority and Green Bank to assist in the heating and cooling storage merging endeavors. Mr. Koh also stated that he recently attended the spring bank meetings held in Washington D.C. He indicated that the Authority's leadership through Green Bank and Green Bank as a deployment model is being looked at for potential replication in other national contexts. There is recognition of the leadership of the structure especially as more Green Bank transactions are completed.

Mr. Kauffman indicated that the last item on the agenda was other business.

Thereafter, there being no other business, upon motion duly made and seconded, and by unanimous voice vote of the Members, the meeting was adjourned.

A handwritten signature in black ink, appearing to read 'Noah C. Shaw', written over a horizontal line.

Noah C. Shaw
Secretary



NYSERDA

ANDREW M. CUOMO
Governor

RICHARD L. KAUFFMAN
Chair

JOHN B. RHODES
President and CEO

April 26, 2017

NOTICE OF MEETING AND AGENDA

TO THE MEMBERS OF THE NEW YORK STATE ENERGY RESEARCH AND DEVELOPMENT AUTHORITY:

PLEASE TAKE NOTICE that a regular (the 234th) meeting of the New York State Energy Research and Development Authority (“Authority”) will be held in the Authority’s New York City Office at 1359 Broadway, 19th Floor, New York, New York, and in the Authority’s Albany Office at 17 Columbia Circle, Albany, New York, on Thursday, April 27, 2017, commencing at 1:30 p.m., for the following purposes:

1. To receive a report from the Governance Committee and:
 - (a) to consider and act upon a resolution approving an updated conflict of interest policy for Authority employees; and
 - (b) to consider and act upon a resolution recommending approval of a salary increase for Officers.
2. To consider and act upon a resolution to enter into executive session for the purpose of discussing the employment history of a particular person.
3. To consider and act upon a resolution approving the disposal of real property at the Saratoga Technology + Energy Park.
4. To consider and act upon a resolution commending Dr. Elizabeth Thorndike for her service to the Authority.
5. To consider and act upon a resolution commending Jigar Shah for his service to the Authority.
6. To consider and act upon a resolution commending Audrey Zibelman for her service to the Authority.
7. To consider and act upon a resolution appointing members to the Audit and Finance Committee and the Waste and Facilities Management Committee.
8. To consider and act upon a resolution approving a periodic contracts report.

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9. To consider and act upon a resolution approving amendments to the Authority's Bylaws.
10. To receive a report from the Program Planning Committee.
11. To receive a report from the Audit and Finance Committee.
12. To receive a status report on New York Green Bank.
13. To transact such other business as may properly come before the meeting.

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.nyserda.ny.gov/About/Board-Governance/Board-and-Committee-Meetings>.



Noah C. Shaw
Secretary