MTA Press Releases

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MTA LI BUS And NYPA Install First Sodium Sulfur Battery Energy Storage System In State

Green Project to Cut Refueling Costs

GARDEN CITY, N.Y.—Metropolitan Transportation Authority (MTA) Executive Director and Chief Executive Officer Elliot G. Sander, President of MTA Long Island Bus Joseph J. Smith, and New York Power Authority (NYPA) President and Chief Executive Officer Richard M. Kessel today announced the successful installation of the first advanced sodium sulfur battery energy storage system (BESS) in New York State. The BESS is used at an MTA LI Bus depot here for storing electricity to reduce refueling costs for over 220 natural gas-powered buses by about $246,500 a year.

As the primary benefits of the BESS are reducing costs for energy and operating, this project is expected to save about $26,500 a year in utility bills and an additional $220,000 annual savings in labor costs. Additional benefits of the BESS are that it is virtually noiseless, produces no emissions and requires minimal maintenance.

"The MTA is leaving no stone unturned in its search for ways to reduce controllable costs," said Elliot G. Sander, executive director and chief executive officer, Metropolitan Transportation Authority. "Through this advanced battery technology, we have reduced our energy expenses by shifting our electricity purchases to low-demand periods when it is inexpensive. We appreciate the expertise and financing assistance from NYPA that made this trial possible."

"This is the first use of this type of advanced battery energy storage technology on the customer-side of the electric meter in New York and anywhere in the United States. It has wide-ranging possibilities including expanding renewable energy resources, which is a key element of Governor Paterson's plans to encourage greater energy independence in New York," said Richard M. Kessel, president and chief executive officer, New York Power Authority. "Storing energy based on this process has the potential to capture intermittent sources such as wind or tidal power and then provide this clean energy when it is needed most."

"LI Bus is pleased to be an active participant with NYPA in developing this innovative technology," said Joseph J. Smith, senior vice president - NYCT Department of Buses, president - MTA Bus, president - LI Bus. "This advanced battery storage system allows LI Bus to improve its energy efficiency, reduce costs and provide emergency backup power while utilizing an environmentally responsible technology. We look forward to additional opportunities to leverage other technologies to reduce our expenses in an environmentally-friendly way."

"NYSERDA's interest in sodium sulfur battery electric storage development and testing dates back to 2001. This $1 million investment, along with our $3.6 million for Long Island Bus natural gas-powered bus purchases, brings our total interest to about $5 million. This project, a direct synthesis of those early efforts, refuels mass-transit vehicles in an innovative, cost-cutting way and cuts air pollution," noted Robert G. Callender, vice president for Programs, New York State Energy Research and Development Authority (NYSERDA). "These are key tenets in Gov. Paterson's Renewable Energy Task Force reforms for the future of the Empire State."

"Advanced energy storage will be a vital component of our renewable and traditional energy strategies to meet our future goals of a diversified portfolio and is consistent with Governor Paterson's 45 X 15 initiative announced just this week in his State of the State message," said Kevin S. Law, president and chief executive officer of the Long Island Power Authority (LIPA). "LIPA remains committed to working with NYPA to advance battery storage technology and other energy projects to help meet future demand in our region."

"The NYPA NAS battery demonstration project is the first U.S. use of this technology in a utility-customer application," said Arshad Mansoor, vice president of EPRI's Power Delivery and Utilization sector. "The project is expected to provide the customer with improved reliability and energy efficiency. EPRI provided assistance to NYPA in two major areas of this project. We obtained collaborative participation with a diverse group of utility companies representing all regions of the country with different business objectives for energy storage, and we provided technical assistance at several important project junctures, including support for factory testing and development of a long-term maintenance strategy."

"Offering technological solutions that reduce environmental impact while lowering energy costs is one of our key focuses," said Mike Wallin, North American vice president and general manager, Power Electronics, ABB, Inc. "ABB is proud to have been selected to contribute to the success of this important project."

"Con Edison recognizes the long- term importance of energy storage to improve asset utilization and make effective use of future renewable capacity that may not be available coincident with peak demand. Energy storage technologies, such as the NAS battery demonstrated by this project, are essential to fully integrate and maximize t he reliability of the future grid," said Pat Duggan, R&D Project Manager, Consolidated Edison Co. of NY, Inc. "In the tradition of Thomas Edison, we appreciate the opportunity to learn more about these devices, their interconnection requirements, and how they might benefit the Con Edison system and the electric power industry throughout the country."

"CPS Energy (San Antonio, Texas) is excited by the success of NYPA's and MTA LI Bus' energy storage project," stated Al Lujan, executive vice president for Energy Delivery, CPS Energy. "As one of the participants in the funding collaborative with other EPRI members, we have observed with great interest as the BESS project advanced. CPS Energy's Research and Technology Initiatives department is currently developing our company's energy storage pilot project, the first of its kind in the State of Texas, and is incorporating into the project plan the information and experiences that NYPA

has shared with its research partners. It is clear to us that energy storage is the key to full and reliable integration of renewable resources into the power grid and that public/private partnerships are the most efficient and effective methods for developing and implementing new energy-focused technologies. CPS Energy is pleased to have been a partner in this game-changing endeavor."

NYSERDA and several partners helped fund the installation and demonstration of the BESS which powers the electric motors for three compressors used to refuel natural gas busses, owned and operated by MTA LI Bus, during the day. The BESS then automatically recharges itself, using power from the electric grid at night when rates are lower, creating energy savings. Previously, to take advantage of night rates, MTA LI Bus limited compressor operations for

fueling to nighttime requiring a third shift with full maintenance staffing. With the BESS, MTA LI Bus is able to move fueling to the day and reduce the third shift to save operating costs.

The BESS consists of a sodium sulfur (NaS) battery system; power controls and other related systems. When fully charged the BESS is capable of providing one megawatt (mw) of power to the compressors for up to seven hours a day. It can operate seven days a week.

In order to demonstrate the commercial viability for the BESS, NYPA originated the concept for this project to help save energy costs for its customer the MTA, the parent company of MTA LI Bus. NYPA proposed the BESS to MTA LI Bus and provided overall project management including assistance with financing.

For the total project cost of $4.3 million, NYPA helped to attract $2.4 million in funding from the New York State Energy Research and Development Authority, the United States Department of Energy, Sandia National Laboratories, the Electric Power Research Institute, the Long Island Power Authority, the American Public Power Association, the Canadian Energy Association, Natural Resources Canada and several other partners. Included in this funding was $300,000 provided from Petroleum Overcharge Restitution funds administered by NYPA.

The NaS battery system was supplied by NGK Insulators, Ltd of Japan. The Power Electronics division, located in Wis., of ABB, Inc., an international technology company headquartered in Switzerland, supplied the power controls for charging and discharging the batteries, and did the installation.

A data acquisition system for long-term performance monitoring was provided by Sandia National Laboratories, of N.M., and EnerNex Corporation, based in Tenn.

In addition to BESS, the MTA and NYPA have been partners on almost 70 energy services projects at 75 MTA facilities resulting in energy savings totaling of over $5.5 million per year for commuters and taxpayers. These projects also annually save almost 8.5 megawatts of electricity (enough to power about 6,800 to 8,500 homes using average national home sizes) and reduce greenhouse gas emissions by about 42 tons.

Since the early 1990's NYPA has also worked with other entities including municipalities and school districts all over Nassau and Suffolk Counties to advance the use energy technologies and energy efficiency projects. There have been a total of almost 125 projects at over 380 facilities saving taxpayers annually over $14.5 million and reducing greenhouse gases by more than 71 tons per year.

Complete List of Project Funders and Partners:

American Public Power Association's DEED program

CEATI International Inc.

Consolidated Edison Company of New York, Inc.

CPS Energy

Electric Power Research Institute

FirstEnergy Corp.

Hydro One

Hydro-Quebec

Long Island Power Authority

Metropolitan Transportation Authority Long Island Bus

Natural Resources Canada

New York Power Authority

New York Independent System Operator

New York State Energy Research and Development Authority

Public Service Electric and Gas Company

San Diego Gas & Electric

Sandia National Laboratories

Southern Company

Tennessee Valley Authority

United States Department of Energy