

Municipal Utilities Serving as Emerging Technologies Pacesetters

Massachusetts municipal utilities are leading the way in implementing emerging technologies projects in their communities, demonstrating that municipal utilities are doing their part to help the state meet its energy and climate change goals.

Two ongoing projects in MMWEC member towns offer an example of the ways Massachusetts municipal utilities are diversifying their portfolios and improving resiliency. The Sterling Municipal Light Department (SMLD) is constructing the first utility-scale energy storage project in Massachusetts, and the West Boylston Municipal Light Plant (WBMLP) is building a 1.5-megawatt community solar project.

In West Boylston, the WBMLP will soon be home to a 6,500-panel community solar project. It is the light department's second solar project, but first community solar system. Constructed on the site of the town's closed landfill at Temple and Pierce streets, the project allows for the re-use of land with few future options.

The community solar project, to be owned and operated by the light department, is expected to produce approximately 2,654,000 kilowatts hours annually, representing four to five percent of WBMLP's annual energy requirements. Customers will have the opportunity to participate in the project through a subscription. It is ideal for customers who have an interest in

"going green" but for whom rooftop solar is not an option.

WBMLP is taking advantage of today's lower costs of solar equipment and improved technology. The project will help to reduce transmission costs and stabilize prices for customers. WBMLP has not had a rate increase since 2009.

In Sterling, the SMLD has broken ground on the first utility-scale energy storage facility in Massachusetts, serving as an example for other utilities around the region. The 2-megawatt, 3.9-megawatt-hour battery storage system effectively doubles the battery storage capacity in the Bay State. Its varied uses include islanding from the grid during a power outage, and with the support of existing solar generation, providing up to 12 days of backup power to the town's police department.

SMLD worked with the U.S. Department of Energy in the development of the project. At SMLD's groundbreaking



West Boylston Community Solar Dedication

Continued on Page 4

Power Markets Struggle to Integrate State-Mandated Clean Energy Contracts

Concern is rising in New England as electric industry stakeholders and state officials struggle to integrate state-mandated clean energy resources with the region's existing wholesale power markets.

The concern stems from state laws and related policies that require utilities to purchase thousands of megawatts of electric power from non-carbon resources, such as hydro, wind, and solar, in order to meet clean energy objectives and address climate change issues. The states' procurement process is under way and is occurring outside the regional wholesale power markets operated by ISO New England (ISO-NE), which works under federal jurisdiction and is charged with ensuring a reliable power supply for the New England region.

A primary concern is that if ISO-NE purchases the power it needs to ensure

reliability through the existing marketplace, and the states purchase the resources they need to meet clean energy goals outside of the marketplace, consumers could end up paying twice for a reliable power supply. Discussions on how to avoid that result and address other issues are taking place in a series of meetings focused on Integrating Markets and Public Policy (IMAPP).

The IMAPP meetings are organized by the New England Power Pool, a voluntary association of power market participants, including public power entities, power generators, transmission owners, their consultants and others. State officials and regulators also are participating in the IMAPP process.

MMWEC staff are participating in the IMAPP process, representing and protecting the interests of the MMWEC Member utilities. Initially, the

process was intended to produce a framework for integration by year's end, but after the first three meetings participants recognized that goal was unachievable. Now, the focus is on identifying and addressing near-term issues, like finding a way to accommodate the state contracts that are under development in existing markets, and allowing additional time to address longer-term issues, like restructuring the markets to procure non-emitting resources to meet the public policy objectives of the states.

Several proposals involving extensive and complex changes to the existing ISO-NE markets have been presented and discussed in the IMAPP meetings, including some that would place a price on carbon in the regional marketplace, essentially providing additional revenue to support renewable energy development.

Continued on Page 3

Stony Brook Completes Successful Fall Outage

MMMWEC successfully completed the annual fall maintenance outage at its 526-megawatt Stony Brook power plant, which is operated by MMWEC. All units were returned to service on time, with all critical work completed.

The annual outage work focuses on routine testing and inspections. State required, Heat Recovery Steam Generator, or HRSG, annual inspections, were conducted. This inspection involves an internal examination of the boiler attached to the turbine.

Gas turbine borescope inspections, to detect problems with the compressor and hot sections of the turbine, are also on the to-do list every year.

Various switchyard testing tasks were completed, with the majority of the work consisting of transformer testing. A problem with one of the plant's auto transformers was detected during this maintenance work. A bad bushing on one

of the auto transformers was discovered, and required replacing before the transformer was re-energized.

Plant pressure vessels were inspected, and a large number of major valve repairs were completed. A hydrogen control panel on unit 2A, and a fuel flow divider on unit 2B were replaced. An additional larger job was the installation of new compressor bleed valves on the intermediate gas turbines.

"These are mostly preventative and other maintenance tasks that we can't get to while the units are available," said Glenn Corbiere, plant manager. "All critical jobs and nearly all of the planned maintenance was completed."

Tasks that were not completed by the time all units were back online on October 3 will not affect unit availability. Corbiere said there were no injuries during the outage, which involved all plant personnel and about six different outside contractors. ∞

Climate SuperStars



Members of the Westfield Boys & Girls Club's Torch Club recently toured MMWEC's Stony Brook Energy Center. The teens participated in the tour as part of a national contest they have entered, the "Climate SuperStars Challenge," which aims to motivate young people to take actions that help protect the environment and raise awareness about climate change.

Competition in Transmission Development is Lacking, MMWEC Tells FERC

The Federal Energy Regulatory Commission's (FERC) Order 1000, which reforms the electric transmission planning and cost allocation requirements for public utility transmission providers, has done little to increase the level of competition in transmission development in New England, according to comments filed with FERC by MMWEC. FERC requested comments from stakeholders following a June technical conference to explore issues related to the competitive transmission development process.

In its comments, MMWEC commended FERC for making efforts via Order 1000 to enable competitive transmission development. Competition can curb the rapid growth in transmission costs in New England. However, since Order 1000 was implemented in 2011, there have been no new transmission projects open to competition.

While investment in New England regional transmission facilities needed for reliability has increased from about \$3.8 billion to approximately \$9 billion over the past six years, MMWEC has been a vocal advocate for public power ownership in new transmission facilities. Order 1000 has the potential to result in new transmission ownership opportunities for public power, but there is little incentive for incumbent transmission owners to offer such ownership opportunities, despite the cost-reducing impact of tax-exempt financing and other consumer benefits

public power brings to the table.

One of the main roadblocks to seeing the intentions of Order 1000 realized is the three-year Right of First Refusal (ROFR), which excludes certain transmission projects from a competitive development process. The ROFR has been used in all of ISO-NE's reliability needs assessments, and has resulted in projects that were not originally deemed time-sensitive being re-designated to be subjected to the three-year ROFR. MMWEC's comments call for modification or removal of this ROFR.

MMWEC also called for standardized cost caps or cost containment provisions in the bidding process to ensure accurate comparison of costs and reliability aspects of competing projects.

"While we believe that competition offers important opportunities for controlling transmission costs, we do not believe that there can be real competition without cost caps or cost containment provisions in the bidding process," MMWEC states.

Finally, to help contain costs and encourage transmission developers to keep costs within their bid amounts, MMWEC suggested that transmission incentives, including return on equity adders, be barred from application to amounts in excess of a project's initial estimate or cost cap. This would limit the application of transmission incentives to cost overruns, as is allowed today. ∞



Power Markets Struggle to Integrate Clean Energy.....continued from page 1

The carbon adder proposal would have the additional benefit of supplementing revenue to the region’s non-carbon nuclear generators to ensure their continued operation but raising real-time prices. Other proposals call for the development of a two-tiered Forward Capacity Market, two-tiered pricing combining clean energy and capacity, and other measures that would require dramatic changes in the structure and design of existing markets.

After hearing some of these proposals, ISO-NE indicated its concern about the timeline and other issues related to such changes, which would require, among other things, an assessment of feasibility, including price and reliability impacts; the development by ISO-NE and approval by federal regulators of new market rules; and the design and implementation of new computer systems to operate and settle a vastly different marketplace. ISO-NE stated that “achieving significant change in the short term will be extremely challenging”.

The New England States Committee on Electricity (NESCOE), which represents the collective perspective of the six New England Governors in regional electricity matters, also expressed its concern with the proposals, especially the carbon-adder proposals, which it said “present several risk factors” that “counsel toward alternative designs”. Establishment of a single, regional price for electricity that includes a carbon adder would conflict with NESCOE’s core objectives, particularly “the unconditional need to ensure consumers in states without mandates are not forced by a mechanism ... to fund other states’ mandates as well as concerns that this method may not procure their desired technology objectives on their timeline.

In addition, to the extent that state public policies and IMAPP proposals affect wholesale electricity prices, which most of them do, there are legal and jurisdictional issues that arise involving the line between federal and state authority, with the Federal Energy Regulatory Commission (FERC) holding broad and exclusive jurisdiction over wholesale power markets, including rates. Power plant incentive programs in

New Jersey and Maryland were undone by the U.S. Supreme Court earlier this year because they infringed on FERC’s power market authority, and several parties recently filed a challenge in federal court to a New York plan providing market support for nuclear generation. Whatever current policy or proposal moves forward in New England, there is a strong likelihood of jurisdictional litigation by an aggrieved stakeholder that could delay implementation.

The IMAPP process holds the potential for significant reforms in New England’s wholesale power markets, and MMWEC will continue to participate in related discussions to identify challenges and opportunities for its Member utilities.∞



A 100-ton transformer from the Stony Brook power plant sits on a railroad car in Belchertown, prepared for its two-week journey to Ohio for inspection and repair. MMWEC secured a rental unit as a temporary replacement for the inoperable transformer to keep Stony Brook Peaking Unit 2A available for service.

Hancock Wind Project to Double Output of MMWEC/Member Wind Resources

When the Hancock Wind power project goes online later this year, its output will more than double the current output of MMWEC and individual Member wind resources.

MMWEC has contracted to purchase 37.5 megawatts of the output of the project, which has a nameplate capacity of 51 megawatts, for resale to 17 municipal utilities. That will result in an increase in output from MMWEC/Member wind resources from about 26 megawatts to 63.5 megawatts.



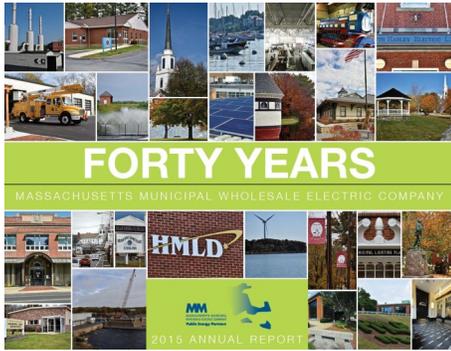
A wind turbine at Hancock Wind

Construction of Hancock Wind, a 17-turbine wind project being constructed in Hancock County, Maine, is nearing completion. Installation of all turbines has been completed, and the project is on track for commercial operation by December 31, 2016. Turbine installation began in May. According to project developer, Reed & Reed, the Hancock Wind turbines are the largest in The Americas, in terms of rotor diameter and tower height. The height of the turbines is 382 feet.

The municipal utilities that have contracted with MMWEC to purchase Hancock Wind project output include light departments in Boylston, Chicopee, Groton, Holden, Holyoke, Ipswich, Mansfield, Marblehead, Paxton, Peabody, Russell, Shrewsbury, Sterling, Templeton, Wakefield, West Boylston and Westfield. ∞

MMWEC to be Recognized for Annual Report by APPA

MMMWEC is being recognized by the American Public Power Association for its 2015 annual report, “Forty Years.” MMWEC is receiving an APPA Excellence in Public Power Communications Award at APPA’s November “Customer Connections” conference in Nashville.



MMWEC’s 2015 annual report recognizes MMWEC’s first four decades as a joint action agency for Massachusetts municipal utilities. Legislation passed in 1975 enabled MMWEC to begin bringing reliability, stability and economy to the municipal utility power

supply in Massachusetts.

“Forty Years” is a reflection of important events in MMWEC’s history, depicted in a milestones-by-decade format. Historical photos of several of these milestones are featured in the report.

The report also includes information about Member and Project Participant utilities. There are facts about each utility and photos of utility managers. The front cover and inside back cover feature diverse photos of MMWEC Member and Project Participant communities.

An outside panel of communications experts judged the APPA award entries on specific criteria. Winning entries were well-designed, visually engaging and creative; aligned with the organization’s core brand and mission; customer-friendly, shared useful resources and information, and featured relevant, engaging, action-oriented text and graphics.

To read the full report, visit the MMWEC public website at www.mmwec.org.

Municipal Utilities Serving as Pacesetters.....continued from page 1

ceremony, DOE Energy Storage Program Manager Dr. Imre Gyuk commended the light department, expressing a hope that Sterling will become an example for other energy storage projects in Massachusetts and across the country. The storage project will help industry leaders better determine the economics of energy storage in various applications and understand what is critical in determining system reliability and safety.

Sterling is funding the project with the help of a \$1.46 million grant from the state Department of Energy Resources. DOER’s grant programs are assisting Massachusetts cities and towns develop clean energy projects, and that commitment to supporting such projects is expected to continue. “State of Charge,” a recently released DOER/Massachusetts Clean Energy Center report, recommends that \$20 million in grant funds be allocated to energy storage projects in the Bay State.

Through its Emerging Technologies Initiative, MMWEC is assisting members in taking advantage of the energy storage and other DOER/MassCEC grant opportunities when applicable. Fifteen MMWEC members have recently applied for DOER grants to fund LED streetlight projects, which will provide a 50 percent cost share for the energy-saving technology.

There are many other examples of investment by municipal utilities in renewable and clean energy projects, including construction and operation of the Commonwealth’s second largest wind farm, the Berkshire Wind Power Project, a 10-turbine, 15-megawatt project in Hancock, MA. The project is owned by

the Berkshire Wind Power Cooperative, which is comprised of MMWEC and 14 of its member municipal utilities.



Sterling Battery Storage Groundbreaking

The City of Holyoke, due largely to innovative projects advanced by the Holyoke Gas & Electric Department, was recognized this year with a climate protection award by the U.S. Conference of Mayors. Holyoke was singled out for its use of carbon-free energy through its ownership of the town’s hydroelectric dam.

MMWEC operates two separate energy efficiency programs for customers of municipal utilities, one for residential customers and the other for commercial, industrial and institutional customers. These programs have produced significant energy and cost savings for municipal utility customers, despite strict limitations on state funding.

Moving into 2017, municipal utilities in Massachusetts are expected to continue launching innovative, forward-thinking projects which put them at the forefront of the green energy industry in the region.

Massachusetts Municipal Wholesale Electric Company

MMWEC

A non-profit, public corporation and political subdivision of the Commonwealth
Joint Action and economies of scale for Massachusetts municipal utilities

327 Moody Street, Ludlow, MA 01056

(413) 308-1392

mmwec@mmwec.org

www.mmwec.org

