

Project Bonds Paid Off: MMWEC Project Participants to Enjoy Debt-Free Asset Ownership

Some 43 years after MMWEC issued the first of nearly \$4.8 billion in bonds to finance and refinance various energy facilities in the region, all project bonds have been paid in full.

On July 1, 2019, MMWEC made the final payment of \$5.26 million in fixed rate debt on its Project No. 6 bonds, which were associated with MMWEC's ownership in the Seabrook Station nuclear plant in New Hampshire. MMWEC's 28 municipal utility project participants will now enjoy years of debt-free ownership in their generating asset entitlements.

Earlier this year, MMWEC redeemed the remaining \$1.85 million in auction rate securities associated with Project No. 6. In 2018, MMWEC made the final payments to retire the bonds issued for its Project No. 3 and Project No. 5, which represented a portion of its ownership interests in the Millstone Unit 3 nuclear power plant in Connecticut, and Seabrook Station.

MMWEC has issued more than \$4.7 billion in bonds since 1976 to finance and refinance its 735-megawatt ownership interest in Seabrook, Millstone, the Stony Brook power plant in Ludlow, MA and Wyman Unit 4 in Yarmouth, ME. Through its



MMWEC Debt Retirement Celebration

ownership in these plants, MMWEC provides electricity to 28 Massachusetts municipal utilities, six Vermont utilities and one Rhode Island utility.

In 2001, a major refinancing of project debt helped save project participants over \$200 million, and helped shape the MMWEC debt management strategy going forward.

It is believed the MMWEC bond retirement leaves its project participants as the only public power utilities in the country to own nuclear assets debt-free. Seabrook Station and Millstone Unit 3 are

expected to operate for years to come. Millstone Unit 3 is licensed to operate until 2045, and Seabrook Station's operating license was recently renewed to 2050.

MMWEC's project participants include municipal utilities in the communities of: Ashburnham, Boylston, Braintree, Chicopee, Danvers, Georgetown, Groton, Hingham, Holden, Holyoke, Hudson, Hull, Ipswich, Littleton, Mansfield, Marblehead, Middleborough, Middleton, North Attleborough, Paxton, Peabody, Princeton, Reading, Russell, Shrewsbury, South Hadley, Sterling, Templeton, Wakefield, West Boylston, and Westfield. ∞

MMWEC, Municipal Utilities Divest Themselves of Aging Oil Plant

In a move consistent with the trajectory of the evolving hybrid grid and policies addressing climate change, MMWEC has sold its ownership interests in W.F. Wyman Station Unit 4, located in Yarmouth, Maine. The output of MMWEC's ownership interest in the Wyman Project was sold to 12 municipal light plants in Massachusetts.

On July 19, 2019, MMWEC sold its ownership interests in the Wyman 4 plant, 43 years after it entered into a power supply agreement for the project. MMWEC owned approximately 3.7 percent, or about 22 megawatts of the oil-fired unit's 610-megawatt capacity. The participants in MMWEC's Wyman Project included municipal utilities in the communities of Boylston, Holyoke, Hudson, Hull, Littleton, Marblehead, Middleborough, Middleton, North Attleborough, Shrewsbury, Wakefield, and Westfield.

As state and regional public policy shifts towards reduced carbon emissions, municipal utilities are doing their part to adjust their power portfolios to help the state meet its carbon reduction goals through the Clean Energy Standard.

In 1976, when the Wyman Project was established, MMWEC

had developed a balanced power supply system consisting of fossil fired generation (including Wyman) and nuclear generation. The power supply mix, with different amounts and types of generating capability, was developed in a manner consistent with sound utility power supply planning. Today, changes in wholesale electric markets and evolving power supply strategies and policies create a need for a different power supply mix. The sale of the Wyman asset is more in line with current sound utility power supply planning for the Wyman Project participants.

The Wyman plant, located on Cousins Island, was built on a 122-acre site in 1978, as a base-load generation unit. When it came online, it marked a milestone for MMWEC and its project participants. For the first time, participating municipal light plants purchased power at cost from a unit financed with lower cost MMWEC revenue bonds and owned by MMWEC, their own power supply agency. Revenue bonds issued by MMWEC to finance the Wyman Project totaled \$9.42 million. All revenue bonds related to MMWEC's Wyman Project were paid off in 2008. ∞

MMWEC Members Share Their Battery Success Stories

Three MMWEC Members, Sterling Municipal Light Department (SMLD), Templeton Municipal Light & Water Plant (TMLWP), and Wakefield Municipal Gas & Light Department (WMGLD), were featured in a recent webinar entitled “Massachusetts’ Municipal Utility Energy Storage Projects: Examples from Sterling, Templeton, and Wakefield.” The June webinar was organized by the Clean Energy States Alliance through its Energy Storage Technology Advancement Partnership (ESTAP) program.

The three MMWEC Members discussed their experiences with grid-scale storage throughout the entire process, from planning and financing to installation and ultimately cost savings, reflecting on industry changes from the time of Sterling’s first energy storage project in 2016 to present day.

Dr. Imre Gyuk, director of Energy Storage Research at the U.S. Department of Energy, served as a panelist and began the discussion by commending MMWEC’s efforts to become leaders in grid-scale storage in the Commonwealth.

“You need a local champion,” Gyuk said. “You need someone who believes in the project and is capable of seeing it through.”

Of the MMWEC Members which have battery systems, SMLD was an early adopter and has continued to be a strong proponent of energy storage. SMLD was the first of MMWEC’s Members to install a battery storage system, and General Manager Sean Hamilton shared the success of their two systems: a 2 MW, 3.9 MWh battery system that was installed in 2016 and a second 1 MW, 2 MWh battery connected to its 1 MW community solar project that went online in 2018. The second battery

project is unique because its benefits go directly to SMLD’s customers, providing 400 program subscribers with 25% of their energy needs. In total, the two systems have saved SMLD customers more than \$1 million in avoided costs since their installations.

MMWEC’s Jason Viadero explained that TMLWP’s 1.6 MW, 3.2 MWh battery was designed based on successful elements of the Sterling and Ashburnham projects, but the system stands out because Templeton is the first MMWEC Member to install a battery without the assistance of grants or subsidies. Instead, the battery system was financed using

MMWEC’s Pooled Loan Program, and became a reality largely because the cost for lithium ion storage systems has significantly decreased over the past three years. And while TMLWP’s battery installation was completed in May 2019, the project has netted the department almost \$30,000 in transmission savings through June. It is expected to generate \$140,000 in capacity savings and between \$150,000 -170,000 in transmission savings in the first year.

WMGLD Engineering & Operations Manager Dave Polson discussed how the department’s motives behind installing its 2.4 MW, 4.8 MWh storage system extended beyond cost savings. In addition to reducing peak load and transmission costs, the battery allows WMGLD to decrease congestion in an area with significant transmission constraints and reduce carbon emissions for the energy generation sector.

WMGLD’s battery has been operating since February 2019 and has a projected six month savings of more than \$100,000 in avoided costs. ∞



WMGLD Ribbon Cutting

State House Day:

MLPs Support State Initiatives, Integrating Emerging Technologies to Reduce Emissions

MMWEC and Massachusetts municipal light plants (MLPs) are leading the way in helping the Commonwealth reach its greenhouse gas emissions reduction goals by decreasing their carbon footprints and integrating green technology into their member systems, according to speakers at MMWEC’s second annual State House Advocacy Day. The event was held June 25 at the State House in Boston.

State House Advocacy Day is an opportunity for managers of MLPs to meet with their legislators and legislative staff to discuss innovative programs and services being offered by municipal utilities, as well as legislative proposals related to the

utilities.

Speakers included Representative Thomas Golden, Jr., Chair of the Joint Committee on Telecommunications, Utilities and Energy, who commended MMWEC and its work with its members.

Judith Judson, Commissioner of the Massachusetts Department of Energy Resources, said she hopes for continued collaboration amongst the state and MLPs through programs such as the Municipal Light Plant Solar Rebate Program, which launched this past May.

One of the ways MMWEC is working to reduce emissions is through its electric vehicle program which Jason Viadero, Chief of Emerging Technologies,



Left to right: State Representative Thomas Golden, Jr., DOER Commissioner Judith Judson and MMWEC CEO Ron DeCurzio

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Report: MLPs Out Front in Integrating Carbon-Free Generation

Municipal utilities are leading the way when it comes to integrating carbon-free generation into their power portfolios, according to a new report by the Analysis Group.

The report, commissioned by the Municipal Electric Association of Massachusetts using data from MMWEC, Energy New England, the state's public power utilities, state agencies and ISO New England, demonstrates the ways in which municipal light plants (MLPs) are supporting state and regional public policy goals to address climate change.

The report cites the MLPs' ownership interests in carbon-free resources, such as MMWEC's Berkshire Wind 1 and 2 and Seabrook and Millstone nuclear power plant projects, as the most important indicator of the role the municipal utilities play in helping the state and region reduce carbon emissions.

In the report, Analysis Group cites the MLPs' ownership interests in carbon-free resources, such as MMWEC's Berkshire Wind 1 and 2 and Seabrook and Millstone nuclear power plant projects, as the most important indicator of the role the municipal utilities play in helping the state and region transition to a lower-emission resource mix. Overall, the MLPs have an owned/contracted portfolio resource mix that is 94 % non-emitting, including solar, wind, nuclear and hydro resources. When including market purchases, the MLP portfolio is approximately 75 percent non-emitting, compared to about 47 % of Massachusetts investor-owned utilities.

"This report is an affirmation of the commitment MMWEC and its project participants made more than 40 years ago, when MMWEC issued its first tax-exempt bonds" - MMWEC CEO Ron DeCurzio

Additionally, several MMWEC members, including municipal utilities in Ashburnham, Holyoke, Sterling, Templeton, Wakefield and West Boylston, have installed energy storage projects in their communities, further demonstrating their commitment to cleaner, emerging technologies.

Municipal utilities have tools, such as long-term contracts and low-cost financing, which help them to quickly act on development and contract opportunities. MMWEC members have the ability to issue tax-exempt bonds to finance projects, helping them to develop projects such as Berkshire Wind. Because of these tools, municipal utilities are often considered ideal partners for developers in getting these projects off the ground.

"This report is an affirmation of the commitment MMWEC and its project participants made more than 40 years ago, when MMWEC issued its first tax-exempt bonds to assist the utilities in developing their power portfolios," said MMWEC CEO Ronald C. DeCurzio.

According to the report, the municipal utilities have been a "highly constructive driver of the development and construction of qualified renewable resources in New England and have contributed to the development of actual steel in the ground," that otherwise would not have been built.

In addition to the cleaner resource mix as compared to investor-owned utilities, customers of municipal utilities pay rates 42% lower than the Massachusetts average, according to the Analysis Group. ∞

Transmission Rates Expected to Rise, Increasing the Value of Reducing Peak Load

Transmissions rates in New England are on the rise, according to a presentation from participating transmission owners at the NEPOOL Transmission Committee summer meeting in July.

There was a slight increase in transmission costs or regional network service (RNS) rates of \$1.51/kW-yr from June 2018 to June 2019. However, transmissions costs are predicted to increase 23% between 2019 and 2023.

The transmission rate forecast is based on estimated capital additions provided to the committee by New England transmission owners. It includes a number of variables including estimated project needs, transmission in-service dates, and inflation among others. The report predicts the RNS rate impact for the next four years, the largest being in 2020, with an estimated RNS Rate Impact of \$8/kW-yr.

The two main drivers for the transmission rate increases, which affect network load customers, are an uptick in new transmission projects, such as the greater Boston transmission upgrades, and a growing number of "asset condition" projects, which involve upgrades to aging infrastructure. The relatively modest increase for 2019 is attributed to delays in several relatively large reliability projects coming online in the next few years.

Rising transmission and capacity costs result in increased value associated with peak shaving of network load. MMWEC and its members have been ahead of the curve when it comes to peak shaving, through energy storage integration and the use of other distributed energy resources.

MMWEC began offering peak forecasting services for distributed generation resources in the fall of 2016 and dispatching service in the fall of 2017, and both programs have grown significantly since their inception. In 2017, just two members were participating. This year, 12 members are participating, utilizing 12 permanent resources in the form of generators, batteries, and a flywheel, and eight temporary/summer rental generators.

Five MMWEC members have installed seven energy storage systems. For the first time, a municipal utility was able to install such a system without the help of grants or subsidies, due to declining project costs. The Templeton Municipal Light & Water Plant (TMLWP), which completed construction of its energy storage system in May 2019, used MMWEC's Pooled Loan Program to assist with financing.

The savings created from distributed energy resources are noteworthy. Both Sterling Municipal Light Department (SMLD) and Wakefield Municipal Gas & Light Department surpassed \$1,000,000 in avoided costs in 2019. ∞

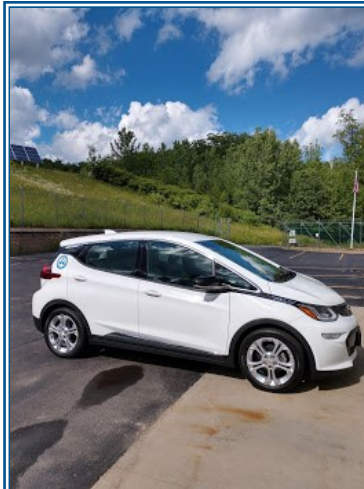
AMPLP Charges Forward with New Town Electric Vehicle

When the Ashburnham Municipal Light Plant's (AMPLP) pickup truck had to be retired this year, General Manager Kevin Sullivan wanted to make an environmentally conscious decision when choosing a replacement vehicle. With the purchase of a Chevrolet Bolt, AMPLP became the first municipal agency or department in town to purchase a fully electric vehicle.

"The AMPLP needed a vehicle that shouted technology, supported the fact that the AMPLP was energy conscious, and indicated that to our customers," Sullivan said.

Sullivan was interested in purchasing a 2019 Chevrolet Bolt, but he also wanted to make sure the electric vehicle was a financially feasible decision for his department. He partnered with MMWEC's Emerging Technologies Team to leverage potential discounts. Thanks to a \$1,000 rebate from General Motors, a \$6,500 rebate from Quirk Chevrolet, and a \$7,500 grant from the state Department of Environmental Protection, he was able to save \$15,000 off the sticker price.

"MMWEC made the process seamless," Sullivan said.



AMPLP's Chevrolet Bolt

The vehicle made its debut at the town's annual Ashburnham Community Day and is now used by AMPLP staff to drive around town. The Bolt takes approximately eight hours to charge from empty to full, and can travel 238 miles per charge. The car replaced a Chevrolet Silverado 1500 truck and is estimated to offset more than 170 gallons of gasoline annually with its 50 mile per week usage. It boasts 128 city and 110 highway miles per gallon equivalent (MPGe), making it at least five times more efficient than the truck. It will be able to charge from AMPLP's distribution system, which receives more than 50% of its power from non-carbon emitting generation resources.

Whenever he has the opportunity, Sullivan invites other municipal employees to ride in the department's Bolt with him so they can learn more about the benefits of electric vehicles. He

said he hopes AMPLP inspires other town agencies and residents to reduce their carbon footprints.

"My hope is that the AMPLP is viewed as a leader, spawning additional municipal and customer interest in electric vehicles," Sullivan said. ∞

State House Day... continued from page 2

explained. The program, which encourages electric vehicle ownership by providing negotiated price incentives through dealerships and free or discounted home chargers, launched in 2017. Currently 10 MMWEC members are participating in the program, and those MLPs account for more than 5% of the electric vehicles sold in the state in 2019.

Viadero also discussed MMWEC's peak load forecasting and remote dispatch services, which enable the dispatch of distributed energy resources (DERs), such as batteries, during peak demand hours, reducing load and cost. Both programs are part of MMWEC's Emerging Technologies Initiative, an innovative partnership with member utilities used to integrate DERs and related technologies into municipal distribution systems efficiently and economically.

"This initiative was launched to allow our members the opportunity to leverage new technology that translates into savings for their customers and a reduction of emissions for the region," MMWEC Chief Executive Officer Ronald C. DeCurzio said.

Several managers had the opportunity to meet one-on-one with legislators and staff following the event. ∞

MMWEC Safety Program



Campers and staff at the Randall Boys & Girls Club in Ludlow pose with linemen from South Hadley Electric Light Department at the annual camp safety program by the R.F. Gouley Company, sponsored by MMWEC.



Massachusetts Municipal Wholesale Electric Company

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Joint Action and economies of scale for Massachusetts municipal utilities

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