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MMWEC's Peak Load Forecasting, Remote Dispatch Program Produces Savings

MMWEC's peak load forecasting and remote dispatch program, initially launched in 2016, had another successful year in 2021.

MMWEC remotely dispatched five batteries and a flywheel with a total capacity of more than 19.3 megawatt hours in five member municipal utility territories in 2021. In total, the light departments saved approximately $1.8 million in avoided capacity and transmission costs under this program last year. Since 2018, the light departments have avoided $5,947,020 in capacity and transmission costs by using these resources.

Using data regression analysis and ISO New England system load data, MMWEC staff developed a model to effectively predict peak demand days and times. Based on their findings, MMWEC remotely dispatches from its Ludlow office numerous distributed energy resources to operate during those peak times. The system has proven nearly 100% accurate. The cost avoidance that has resulted from these services has allowed MMWEC participating members to return these savings to customers through investment in electrification initiatives through the NextZero program, rate stabilization, new equipment or distribution system upgrades.

The Sterling Municipal Light Department (SMLD) was the first to use MMWEC's services, as the first municipal light department with utility scale energy storage in the state. "MMWEC's Battery Remote Dispatch team has proven to be a very successful program," said SMLD General Manager Darren Borge. "They have been remotely operating with our NEC battery since December of 2016. Since then, we have added our Community Solar plus Battery Storage system to their remote dispatch program. Their 24/7 market monitoring and seven-day peak forecast helps get everyone from the MLPs (municipal light plants) to MMWEC on the same page. It helps create lines of communication to best optimize system load and coordinating dispatchable resources.

MMWEC CEO Ronald C. DeCurzio said the program represents yet another tool in the MMWEC toolbox to help municipal light departments reach their carbon emissions targets for 2050.

"The expertise developed by the MMWEC team, coupled with pooled resources, allow for maximum benefits to our members through joint action," said MMWEC CEO Ron DeCurzio. "These savings ultimately benefit their customers, further demonstrating the benefits of joint action and the public power business model."∞

MMWEC Rebrands Energy Efficiency Program, Launches "NextZero"

Decades after first developing energy efficiency programs for its municipal utility members, MMWEC is announcing the launch of its NextZero program.

Designed to help public power communities accelerate decarbonization, NextZero is a rebranding and redesign of MMWEC's existing energy efficiency programs: Home Energy Loss Prevention Services (HELPS) for residential customers, and Green Opportunity (GO) for commercial and industrial customers. While HELPS and GO have served MMWEC and its participating municipal light plants well for years, it was determined that the program's mission, goals and brand should be reexamined to reflect the evolving electric industry, along with changing customer desires and behaviors.

The new brand and its mission were developed through a rigorous strategic planning process with a sub-committee consisting of representatives of participating MLPs. NextZero's mission is to "provide the most efficient, innovative and equitable path to energy decarbonization for our communities." The new mission emphasizes the critical role that community owned electric systems play in developing the clean energy future.

Municipal light departments participating in MMWEC's residential energy efficiency programs through NextZero offer programs such as the Connected Homes demand response program, electric vehicle scheduled charging program, energy audits and rebates for energy-efficient appliances, electrification technologies and weatherization. Several light departments also participate in commercial and industrial energy efficiency programs, including energy efficient lighting retrofits and customized efficiency upgrades.

As part of the rebranding, MMWEC has launched a new website, www.nextzero.org, with an improved, user-friendly design. NextZero will also have a social media presence, with the goal of keeping municipal utility customers and stakeholders alike informed of the innovative and carbon-reducing initiatives offered by NextZero and its participating MLPs. ∞

Hull Light Plant Reinstitutes Temporary Standby Generator Project for Second Year

For the second consecutive winter, the Hull Municipal Lighting Plant (HMLP) has brought in temporary generators to ensure its customers are not left out in the cold.

HMLP relies on investor-owned utility sub-transmission lines and a substation to bring almost 100% of its electric power needs into town. Because of Hull's unique coastal geographical location, there is just one route for these electric supply lines to come into the community.

Over the past several years the reliability of these the sub-transmission lines coming into town has been well below expectation. Over the past few years, the lines have had more frequent and longer faults thereby causing more frequent and sustained outages for HMLP customers.

In 2020, during the height of the Covid-19 pandemic, HMLP experienced six complete blackouts totally over 60 hours, all due to reliability problems with the sub- transmission lines, which date to the 1930s. At that time, with winter approaching and shelters closed due to Covid, HMLP staff knew it needed to act to ensure no Hull resident or business was left in the dark and the cold.

In response, senior management for the HMLP and the HMLP light board developed the concept of whole-town backup generation for the winter months. This is similar to a resident renting a backup generator for a home, but on a town-wide scale, with much more complicated engineering involved. The decision to rent the generators was made in early November and the generators were in place by the first week of December 2020.

In just a few short weeks, HMLP staff designed the required infrastructure, secured the needed equipment and installed it, in time for the generators to be put in place in early December. The generators were rented and returned to the vendor in March 2021. The infrastructure was kept in place in case they were needed again in the future. In the summer of 2021, the HMLP light board voted to bring the generators back to ensure the lights didn't go out during the winter of 2021-2022.

"A project of this type could only happen in a municipal lighting plant because of the dedication of the employees to their ratepayers and community, and the lack of layers of bureaucracy that could otherwise bog down a project like this," said Panos Tokadjian, operations manager at HMLP. "The light department is an important part of the community, and we will do whatever it takes to continue to provide the reliable service our customers depend on and have come to expect."

Parallel to this reliability effort, the light department is looking at ways to bring reliable, resilient power to Hull, while keeping the community in the forefront of innovation. Hull was one of the first communities in the state to have its own land-based wind turbines. Consistent with its goals of providing reliable, renewable and cost-effective power to its customers, HMLP is also exploring alternatives and backup to the sub-transmission lines coming into the town. Under consideration are approaches such as installation of underwater transmission cables from generating stations across the bay, grid scale battery storage, renewal of its two wind turbines, and other cutting-edge technologies. ∞

MMWEC Selected for National Heat Pump Technology Challenge

The United States Department of Energy's (DOE) Residential Cold Climate Heat Pump (CCHP) Technology Challenge, of which MMWEC is a participant, is moving forward in 2022.

DOE Secretary Jennifer Granholm announced that MMWEC has been selected as a utility partner in the challenge in December. The initiative allows MMWEC to participate in a technology demonstration program for next generation heat pumps, in support of reaching net zero carbon emissions by 2050.

The CCHP Technology Challenge aims to reduce the carbon footprint of cold climate heating solutions by improving the efficiency and affordability of new heat pumps. It focuses on centrally-ducted, electric-only CCHPs that exceed best-in-class capacity and efficiency performance at 5 degrees Fahrenheit and below. The challenge brings the resources of the federal government to help advance a key technology in the effort to reduce carbon emission from home heating across the Commonwealth.

In its role as a utility partner, MMWEC will assist with recruiting sites to install a prototype heat pump in a residential unit, allowing data to be collected, facilitating testing of grid interactivity features and performing customer satisfaction surveys.

DOE plans to begin lab testing this spring/summer, with field testing scheduled for the winter of 2022/2023. DOE is currently working with eight manufacturers to further develop the technology. It is hoped that the challenge will result in improved performance over existing heat pumps at very low temperatures, using low Global Warming Potential (GWP) refrigerants, while incorporating grid interactivity.

Under the program, MMWEC will develop customer incentives and pilot programs to encourage CCHP adoption. Costs related to equipment, installation, testing and evaluations of the pilot demonstrations will be covered by DOE.

"We are excited to be participating in this groundbreaking program to improve heat pump technology for use in cold weather climates such as New England," said MMWEC Sustainable Energy Policy and Program Senior Manager Bill Bullock. "MMWEC's selection as a utility partner in this challenge is a recognition of our commitment to assisting the Commonwealth's municipal utilities in reducing carbon emissions now and in the future." ∞

MMWEC Members Participate in New Efficiency, Rebate Programs

Several MMWEC Member municipal light plants (MLPs) are taking actions to decarbonize their communities by participating in the NextZero Electric Yard Equipment rebate program and the Air Source Heat Pump Assessment Program.

Shrewsbury Electric and Cable Operations (SELCO) pioneered the NextZero Electric Yard Equipment rebate program when it began offering rebates in April 2021. Through this program, customers of participating MLPs are eligible for rebates ranging from $25 to $100 on battery operated yard equipment such as lawn mowers, snow blowers, hedge trimmers, pressure washers, rototillers, chain and pole saws, leaf blowers, and string trimmers. Customers are permitted one rebate for each equipment type every three years. The eligible products must be new, rechargeable, and cordless, with a maximum rebate amount of 50 percent of the purchase price.

SELCO's program had a strong start. In 2021, they processed 175 rebates for electric yard equipment totaling nearly $10,000 in rebates for SELCO customers. The MLPs in Boylston, Chicopee, Marblehead, Paxton, Peabody, and Princeton have all signed on to the Electric Yard Equipment Rebate for 2022.

"According to the California Air Resources Board (CARB), operating a gas powered commercial leaf blower for one hour emits as much pollution as driving your car for 1000 miles," said Chicopee Electric Light General Manager Jim Lisowski. "We view the program as another step towards the electrification of the American home and an opportunity for our customers to reduce their carbon footprint." Electric yard equipment also improves local air quality and reduces noise pollution.

Ipswich Electric Light Department (IELD) and South Hadley Electric Light Department (SHELD) also offer rebates for electric yard equipment directly through the light departments.

In May 2021, MMWEC partnered with Center for EcoTechonology (CET), MMWEC's residential energy audit provider, to offer the Air Source Heat Pump Assessment Program. This program promotes home electrification by offering customers of participating MLPs a free, no-obligation heat pump assessment. Customers can meet with independent heat pump experts to learn more about the heating and cooling technology. They will learn how they can save money and conserve energy by purchasing or upgrading their heating and cooling system with a heat pump system. If customers decide to pursue a heat pump system, CET helps them every step of the way, from finding a contractor to conducting a post -installation inspection.

The program launched with seven participating Member MLPs in 2021. In 2022, the number of participants has grown to 11 Member MLPs including Ashburnham, Boylston, Chicopee, Holden, Marblehead, Paxton, Peabody, Princeton, Shrewsbury, South Hadley, and West Boylston.

Both the Electric Yard Equipment Rebate and Air Source Heat Pump Assessment programs help MMWEC Members in supporting the Commonwealth's decarbonization goals. ∞

Peabody Utility Donates Equipment to Navajo Nation

Peabody Municipal Light Plant (PMLP) has stepped up to assist residents of the Navajo Nation in an effort to give more residents access to electricity in the region.

PMLP recently donated surplus equipment - approximately 700 outdoor distribution fuse cutouts - valued at over $70,000, to help bring power to the families of the Navajo Nation. The cutouts donated by PMLP are made of porcelain, which is less reliable in New England's climate. The stable temperature in the Navajo Nation is a better environment for this type of equipment.

The donation is part of a joint venture between the American Public Power Association and the Navajo Tribal Utility Authority.

The initiative to provide increased access to the region, called "Light Up Navajo," began in 2019, when public power utility employees from across the country, including from MMWEC Member utilities, traveled to the remote area to connect Navajo homes to the grid. Nearly 30% of Navajo homes do not have access to electricity, which means they lack access to running water, reliable light, modern forms of home heating and cooling and appliances such as refrigerators and microwaves. Families must travel far from their homes once or twice a week to get water and ice to preserve their food in coolers.

In that first year, public power volunteers connected 230 homes to the grid. The joint venture utilized efficiencies that led to cost savings, significantly reducing the cost for connecting individual homes in the remote area to the grid. "Light Up Navajo" leverages the concept of "mutual aid without a storm," and serves as a successful model for future electrification projects. The initiative is preparing for its third trip to the region in 2022 to bring even more families online.

A palate of PMLP's fuse cut-out donations to the Navajo Nation.

PMLP's Municipal Lighting Commission unanimously voted to approve the donation. ∞

Cooking with Magnets: MMWEC Members Promote Switch to Induction Cooking

Two MMWEC Members are working with MMWEC's energy efficiency service provider to promote making the switch to induction cooking.

Shrewsbury Electric and Cable Operations (SELCO) and Ipswich Electric Light Department (IELD) have partnered with the Center for EcoTechnology (CET) for a "Cooking with Magnets" campaign. In an effort to spread the word about induction cooking, the light departments are offering induction cooktop lending kits through their local libraries. To promote the campaign, CET and the utilities will use social media, include informational materials in audit reports, and are offering incentives for induction stoves.

An induction stove lending kit from SELCO.

Unlike gas, propane and electric cooktops, which use an open flame or heating element, induction cooking uses electromagnetic energy to heat pots and pans directly. Using induction for cooking can reduce cooking carbon emissions by half and eliminates indoor air pollution that is linked to childhood asthma. It is also considered safer, because only the pan is heated. In addition, the improved efficiency can reduce cooking time by up to 50 percent. Plus, with their smooth surfaces, induction cooktops are easy to clean.

The induction stove lending kits include an induction cooktop with instructions, a pot, frying pan, diffuser plate to convert any non-magnetic cookware, and a meat thermometer. Borrowers may find that their own cookware will also work with the cooktop, provided a magnet sticks to them. Borrowers will also receive a brochure with other handy tips on the cooktop's care and use.

"We are excited to partner with CET and Shrewsbury Public Library to help promote the benefits of induction cooking and electrification to Shrewsbury residents," says Jackie Pratt, Director of Integrated Resources and Communications at SELCO. "We believe giving customers an opportunity to test drive the technology will really help sell them on the induction cooking experience. Shifting from fossil fuels to electric for transportation, home heating, and even cooking are important steps toward decarbonization. This program is one of the many ways SELCO is supporting a clean energy future."

"Many of our customers are gas users who don't yet know the quality and precision that induction cooking offers," said IELD Customer Services Specialist Ashley Wilson. "Getting these lending kits in the hands of home cooks takes the mystery out of induction so that the environmental, health and safety benefits can be appreciated first hand."

"We're really excited to pilot this effort with SELCO and IELD," says Ashley Muspratt, Director of Innovation at CET. "Electrification is important for a just and equitable transition to the low-carbon economy, and the numerous benefits of induction cooking make it a great step toward achieving that goal!"

For more information on the "Cooking with Magnets" campaign, email mmwec@mmwec.org. ∞

MMWEC Supports Local First Responders

MMWEC donated Yeti coolers to a local first responders appreciation event that took place in January. The coolers went to the Ludlow fire and police departments, Wilbraham fire and police departments, Hampden fire and police departments, and Hampden County Sheriff's Department. Additionally, one local state police trooper and one local first responder retiree were recipients of the donated coolers. ∞

MMWEC's Joe Mazzaferro with the nine donated Yeti coolers.

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