The Commonwealth of Massachusetts
JOHN F. A. DAVIDSON
Secretary of the Commonwealth

STATE HOUSE BOSTON, MASS.
ARTICLES OF ORGANIZATION
OF ELECTRIC COMPANIES

We, Francis H. King, President, Michael F. Collins, Treasurer,
and James G. Baker, John J. Korkor, Allan Spurrill and Francis H. King,
being the majority of the Directors of Massachusetts Municipal Wholesale Electric
Company, do hereby certify that the following is a true copy of the articles of association
in compliance with the requirements of Chapter 164 of the Acts of 1941.

We, whose names are hereunto subscribed, are the persons authorized to form a Corporation
under the provisions of Chapter 164.

The purpose for which the Corporation is formed is as follows:

- To purchase and acquire electricity within or without the Commonwealth of Massachusetts; to transmit, back-up and distribute, or to arrange for the transmission, back-up and coordination of, electricity to and for any city or town within the Commonwealth of Massachusetts that maintains a plant for the manufacture or distribution, or both, of electricity; to sell, or to sell and distribute, electricity exclusively at wholesale without profit on a cost of service basis directly to any city or town within the Commonwealth of Massachusetts that maintains a plant for the manufacture or distribution, or both, of electricity; to sell, or to sell and distribute, any surplus electricity exclusively at wholesale for resale directly to any firm, person, association, corporation, trust, other municipality, membership cooperative and public electric light or power district engaged in the business of selling electricity to the public if the Corporation shall determine that on city or within the Commonwealth of Massachusetts that maintains a plant for the manufacture or distribution, or both, of electricity has a requirement at that time for such surplus electricity, and to transmit or arrange for the transmission of such surplus electricity to such firm, person, association, corporation, other municipality, membership cooperative and public electric light or power district engaged in the business of selling electricity to the public; to exchange, inter-change, co-mingle and pool electricity; and in general to carry on any other activities in connection with these purposes, and to have and exercise all the powers conferred by
It’s been 50 years since a group of municipal utility managers, seeking to establish power supply independence from investor-owned utilities, established the Massachusetts Municipal Wholesale Electric Company. It would take several years to clearly define the structure and purpose of MMWEC, but its creation set the framework for a new future for Massachusetts municipal utilities.

Following MMWEC’s creation in 1969, municipal utilities and MMWEC were granted new rights in their quest to develop their own power supplies. In 1973, municipal utilities were granted the right to joint ownership in the large power plants being developed by private utilities. The agreement with the New England Power Pool (NEPOOL) also called on the municipal utilities to provide New England with up to 800 megawatts of NEPOOL-planned generating capacity.

That same year, Chapter 164A of the General Laws of Massachusetts was enacted, which gave municipal utilities the right to participate in NEPOOL, the right to purchase shares in NEPOOL-planned generating units and the right to issue tax-exempt revenue bonds to finance these purchases. As MMWEC went about its work to assist municipal utilities with planning, financing and building an independent power supply, it continued looking for ways to buy or finance new generating capacity on behalf of its Members, which MMWEC was not empowered to do.

Then came Chapter 775 of the General Laws of 1975, which established MMWEC as a public corporation and political subdivision, empowered with the unique legislative authority to issue tax-exempt revenue bonds to finance a variety of electric facilities on behalf of its Members. It is this authority that has helped MMWEC and its Members use joint action to provide superior service at the lowest cost over more than four decades. It also set the stage for the issuance of more than $4.7 billion in bond issues to allow MMWEC to finance and refinance its ownership interest in several New England electric generating facilities. As the final bonds are retired, the years ago investments of MMWEC Project Participants will have paid off, with decades of life remaining for MMWEC’s nuclear assets.

Today, joint action and the public power business model work hand-in-hand to continue bringing superior service at the lowest cost to municipal utility customers, all while supporting public policies intended to reduce carbon emissions. In 2018, MMWEC and its Members developed several innovative projects, programs and services to that end. Through the end of 2018, MMWEC Member utilities owned 58.2 megawatts of wind generation, 47.5 megawatts of solar and 17.5 megawatts of energy storage, with an additional 8 megawatts of energy storage coming online in 2019. That’s compared to just 5.46 megawatts of wind, no solar and no energy storage in early 2010.

As we reflect on the fledgling organization in the early days of MMWEC’s establishment and consider what MMWEC is today, it is clear that our mission and purpose have remained steadfast as we work to support our Members in providing the superior service their customers have come to expect from their municipal utility.
It was 1976 when MMWEC issued the first of more than $4.7 billion in bonds to finance and refinance its 735-megawatt ownership interests in several New England electric generating facilities, including Seabrook Station in New Hampshire, Millstone Unit 3 in Connecticut, Stony Brook Energy Center in Massachusetts and Wyman Unit 4 in Maine. This program has allowed MMWEC to deliver an independent power supply to 28 Massachusetts utilities, six Vermont utilities and one Rhode Island utility, for decades. Just $7 million in outstanding power supply project debt, related to a portion of MMWEC’s ownership in Seabrook Station and Millstone, remained at the conclusion of 2018; that debt is being retired this year. Payments for the principal and interest on MMWEC bonds are derived from contracts through which municipal utilities agree to pay a share of MMWEC’s unit ownership costs, including the cost of service, unit operation and expenses. The utilities are entitled to receive a proportionate share of the unit’s output.

The journey to debt-free power supply independence has been a storied one, and represents the strength and effectiveness of public power joint action. The collective strength of the municipal utilities, embodied in MMWEC, enabled the utilities to successfully navigate the 1965 Northeast blackout, which led to the creation of the New England Power Pool (NEPOOL), the predecessor to the current regional grid operator, ISO New England.

Initially, municipal utilities were excluded from the negotiations to create NEPOOL, but involvement in power supply litigation before the Federal Power Commission (predecessor of the Federal Energy Regulatory Commission), the Securities and Exchange Commission and the Nuclear Regulatory Commission, led by public power pioneers such as Frank King of Holyoke and Jim Baker of Shrewsbury, eventually led to the creation of MMWEC in 1969.

It wasn’t until 1975 when the strength of the MMWEC financing program was fully realized. It was that year that MMWEC’s enabling legislation made it a full-fledged joint action agency, empowered to issue tax-exempt bonds. These bonds were backed by take-or-pay power sales agreements with Project Participants to finance a broad range of energy facilities on behalf of its Members.

MMWEC’s challenges weren’t over following passage of its enabling legislation. Legal, financial, regulatory and political issues related to its ownership interest in the under-construction Seabrook Station in the 1980s led to hurdles that took years to overcome. Throughout these trying times, MMWEC remained committed to honoring its financial obligations. Following resolution of the Seabrook crisis with the help of the other joint owners of the project, MMWEC began working towards refunding its outstanding debt and improving its credit ratings in an effort to minimize financing costs.

Following a court ruling in its favor in the early 1990s, the tide began to turn for MMWEC. With its credit ratings on the rise, MMWEC made several bond issues to refund existing debt, reducing power costs and fortifying the financial positions of MMWEC Project Participants. Over the years, MMWEC has continued using innovative
financial initiatives to maximize savings while strengthening the financial positions of MMWEC and its Project Participants. In 2013, the major credit rating agencies affirmed their A-level credit ratings on MMWEC power supply projects, citing the financial and competitive strength of MMWEC and its Project Participants.

As 2018 came to a close, the only remaining project debt was related to the balance of MMWEC’s ownership in Seabrook Station. The long operating life of MMWEC’s nuclear units make them a valuable, long-term hedge against price volatility and uncertainty in wholesale power markets.

The retirement of all MMWEC project debt puts Project Participants in a strong financial position, providing them with competitive advantages and more stable rates going forward, as participants reap the benefits for years to come.
MMWEC’s unique legislative authority allows it to offer to its Members an array of tools and services that can assist in providing customers with superior service at the lowest cost. The Pooled Loan Program, created in 2014, is one such tool that has provided Members with an alternative financing option.

The Pooled Loan Program, designed by MMWEC, offers Members a vehicle to finance various MLP needs. MMWEC Members have identified the advantages of the Pooled Loan Program and have capitalized on the opportunity to be nimble with today’s constantly evolving power markets and reduce their costs. Its structure and flexibility are unique among other financing programs offered by joint action agencies across the country.

Four years after its creation, MMWEC’s Pooled Loan Program had its most active year yet in 2018, with four Members accessing new money through the program. To date, approximately $50,000,000 in new projects have been funded under the program. These projects include peak-reducing distributed energy resources (DER), energy storage projects and a solar array lease. The scope of eligible projects under the program is broad, including everything from smart meters and energy efficient fleet vehicles, to substations and computer upgrades.

In 2018, a new approach was taken to augment the Pooled Loan Program’s flexibility. After a planned landfill solar project being constructed by a private developer in Shrewsbury was in jeopardy, MMWEC and Shrewsbury Electric and Cable Operations teamed up to see the project to completion. Using the Pooled Loan Program, and a unique leasing model, the project was quickly brought back on track using MMWEC’s expedited procurement and project development processes.

Other MMWEC Members were able to use the Pooled Loan Program to support grant awards funding emerging technologies, such as energy storage projects and reduced emissions bucket trucks. As such, the Pooled Loan Program is helping Members invest in these technologies, support public policy goals to reduce carbon emissions and keep costs as low as possible for their customers.
NEW PROJECTS:
ADAPTING TO EVOLVING INDUSTRY

The strength of the MMWEC financing program has enabled it to forge ahead with projects supporting the state’s public policy goals towards a clean energy future.

Berkshire Wind Phase 2
The Berkshire Wind Power Cooperative Corporation (BWPCC) moved ahead with Phase Two of the Berkshire Wind Power Project in 2018, helping its Project Participants diversify their portfolios and support public policy goals of incorporating more carbon free resources into their power supplies.

Phase Two includes construction of two new turbines on top of Brodie Mountain in Hancock, Mass., bringing the site’s generating capacity to 19.6 megawatts. The two, 2.3-megawatt turbines will be erected adjacent to the 10-turbine, 15-megawatt Berkshire Wind Power Project, which began operation in 2011, in what then-Governor Deval Patrick called “a new era of renewable energy development in Massachusetts.” The BWPCC continues fulfilling that mission today.

Improvements in blade technology and longer blades will allow the new 2-megawatt class turbines to reach peak operating and generating output at lower wind speeds, further increasing potential output for the wind farm.

Under contract with BWPCC, MMWEC operates the project, manages its output and coordinates operation with the regional power grid. Sixteen MMWEC Members participate in the Berkshire Wind Power Project, including municipal utilities in Ashburnham, Boylston, Chicopee, Groton, Holden, Hull, Ipswich, Marblehead, Paxton, Peabody, Russell, Shrewsbury, Sterling, Templeton, Wakefield and West Boylston.

Project 2015A
The development of MMWEC’s Project 2015A, a 55-megawatt simple-cycle dual-fueled peaking unit to be built at Waters River in Peabody, continued in 2018. This fast-start unit, with local and remote dispatch capabilities, earned its capacity supply obligation beginning in 2021.

Operating flexibility, including immediate restart and no start-stop cycle limitation, provides quick response times to support slower responding renewables.

Project 2015A directly supports distributed energy resource adoption. It helps the state achieve its clean energy goals by backing resources such as solar and wind, which are not always available. It also hedges capacity market volatility and helps its Project Participants keep balanced portfolios.
**Energy Storage**

MMWEC’s Emerging Technologies Team is continuing its efforts to assist Members in developing innovative projects in their communities. Leveraging MMWEC’s Pooled Loan Program and grants from the Massachusetts Clean Energy Center (MassCEC), MMWEC helped guide advancement on energy storage projects in West Boylston, Ashburnham and Wakefield.

The West Boylston Municipal Light Plant is currently developing a 128-kilowatt behind-the-meter flywheel energy storage system, interconnected through the plant’s existing 370-kilowatt solar project. The flywheel system provides energy storage capability without utilizing ionic exchange like in lithium ion or flow battery systems. This presents the opportunity for an exponentially long operating life, without fade in capacity over time, as is common with chemical batteries. Because of its innovative technology, the system also generates alternative energy portfolio standard credits.

Meanwhile, Ashburnham Municipal Light Plant installed a 3-megawatt lithium ion battery, and the Wakefield Municipal Gas & Light Department completed installation of its own 3-megawatt lithium ion energy storage project in early 2019.

With the assistance of MMWEC’s peak forecasting and remote dispatch services, all three energy storage systems are being utilized for peak load reduction, resulting in lower transmission and capacity costs.

**Electric Vehicle and Charging Program**

Since its launch in 2017, the MMWEC Electric Vehicle and Charging Program has offered participating MLPs and their customers an innovative approach to addressing both customer desires and system needs. At the end of 2018, the program featured nine participating MLPs and 60 drivers signed on to the smart charging program. As experience grows and efficiencies increase, costs have come down and customers are now able to participate in the program with new vehicle types, including plug in hybrid models as well as through a new online application form. In addition, the MMWEC team has been successful in forecasting peak loads for participating Members with 100% accuracy, all while working to improve the customer experience.

As market share of electric vehicles continues to grow, new opportunities and challenges such as vehicle-to-grid technology will present themselves. MMWEC and its participating Members are positioned to adapt and grow with their customers.

The container for Ashburnham Municipal Light Plant is installed.
INNOVATIVE SERVICES: ADDRESSING CHANGING GRID

Residential Demand Management Program
MMWEC is launching an innovative new residential demand management program, with the help of a grant from the Massachusetts Department of Energy Resources Innovative Energy Efficiency Grant Program.

This program, which was developed in 2018, enables MMWEC to deliver a new connected devices software program service to residential, multifamily and small business MLP customers. Customers are engaging with appliances, electric vehicles and small scale storage assets connected at their home or business to drive increases in energy efficiency. Both customers and the MLPs who service them now have the opportunity to reduce electric consumption and shape demand by connecting existing smart devices that significantly contribute residential or small commercial load to an aggregated demand network.

This new service allows customers and utilities to monitor and adjust electric consumption in real time. This completely new and innovative approach to energy efficiency load management demonstrates the collaborative work between MMWEC’s Emerging Technologies Team and Energy Efficiency programs that yield innovative service solutions to MLPs in an evolving industry.

Peak Load Forecasting and Remote Dispatch
MMWEC’s peak load forecasting and dispatching services were expanded in 2018, and resulted in $4.3 million in avoided costs for participating Members.

MMWEC partnered on nine distributed energy resources (DERs) to help Members lower their transmission and capacity costs throughout the year. Using data regression analysis and ISO system load data, MMWEC staff developed a model to effectively predict peak demand days and times. Based on their findings, MMWEC dispatched distributed energy resources, including generators and batteries, to operate during those peak times.

Eight Members participated in the program over the summer, when annual peak loads typically occur. In some cases, MMWEC leveraged its financial strength and its ability as a joint action agency to rent equipment for its Members and operate them to reduce peak load. The cost avoidance that resulted from these services allowed its Members to return these savings to customers through investment in rate stabilization, new equipment or distribution system upgrades.

SEVEN DAY FORECAST

Projected load is ISO-NE forecast for highest load during the day. Threshold is load level that must be crossed to call a potential peak day.
State House Briefing

In an effort to expand outreach and education to policymakers at all levels of government, MMWEC hosted its first Municipal Utilities State House Briefing in 2018. Designed to bring together state lawmakers, agency officials and municipal utility leadership, the event highlighted the value municipal utilities bring to their consumers while supporting the state’s energy policies.

Speakers at the event included Senate President Emerita Harriette L. Chandler (D-Worcester), who was recognized as “A Friend of Public Power,” State Rep. Thomas A. Golden Jr. (D-Lowell), Co-Chairman of the Joint Committee on Telecommunications, Utilities and Energy, and Katie Theoharides of the Executive Office of Energy and Environmental Affairs. Speakers touted the collaborative work between the state and municipal utilities that has resulted in increased energy efficiency, expanded use of innovative technologies and reduced costs for consumers.

The briefing also included an opportunity for municipal utility managers to meet with their state representatives and senators one-on-one as a way to improve communication and collaboration.

Clean Energy Legislation

The Massachusetts legislature passed energy legislation, later signed into law by Governor Baker, which recognized the public power business model built on local control and decision-making authority.

The law includes an increase in the state’s renewable portfolio standard (RPS), which requires retail electric sellers to purchase renewable energy or buy renewable energy certificates to prove that a percentage of the power they sell is renewable. MLPs are exempt from the RPS, but the percentage of carbon-free energy in the portfolios of MMWEC Member MLPs significantly exceeds the state standard.

The bill also creates a clean peak standard to integrate more clean energy into the energy mix to meet peak demand. While this provision does not apply to MLPs, several MMWEC member utilities have installed energy storage systems to reduce their peak loads and may participate in the clean peak standard.

A third provision increases the state’s energy storage target from 200 megawatts to 1,000 megawatts by 2025, and increases incentives for adding energy storage. MLPs are exempt from a requirement to submit annual reports documenting energy storage systems in their service territories.

MLP Solar Incentive Program

The state Department of Energy Resources laid the groundwork to develop a new MLP solar incentive program in 2018, with input and guidance from municipal utilities. MMWEC and MLPs successfully advocated for the exclusion of municipal utilities from participation in the state’s new SMART solar tariff program, and offered the MLP solar program as an alternative. The program, which is voluntary for MLPs, includes a rebate capped at 50% of total installed costs for eligible solar installations of 25kw or less. True to the public power business model, this program allows MLPs to overlay their own solar regulations with this initiative, allowing municipal utilities to craft a program that meets the needs of their customers and the light department.
As MMWEC staff began putting the new technology to work in 2018, many task processes for MMP staff were overhauled. From meter reading to generating power forecasts to producing new reports on power supply, these new processes are smarter, more efficient and less time-consuming.

Following completion of Phase One, MMWEC staff were able to use SMD’s new software for MMWEC’s ISO New England interactions related to daily demand and generation bidding. The archive of data the new system has captured has allowed staff to build a neural network to forecast MMWEC’s demand for load and demand for behind the meter generation assets. The technology also lends itself to the creation of a five-year forecast of all MMWEC assets and the corresponding load from Members to develop forecasts for the MMWEC hedged power program. This forecast is providing the foundation for the extended bulk power forecasts being developed as part of Phase Two.

Additionally, the technology has enabled MMWEC to determine whether economic performance for generation assets can be modeled and where able, create a probability predictor tool to determine whether generation assets will be economically dispatched in the ISO New England market. This allows for the establishment of generation bids for MMWEC and Member assets that comply with ISO New England rules and procedures and maximizes economic outcomes for assets.

Finally, the rollout of enhanced and automated reporting related to the MLP New York Power Authority (NYPA) hydro allocations has streamlined both the reporting and scheduling processes, saving countless hours of staff time and increasing accuracy of data.
TABLE ONE: Condensed Statements of Net Position

<table>
<thead>
<tr>
<th></th>
<th>2018 (in thousands)</th>
<th>2017 (in thousands)</th>
<th>2016 (in thousands)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current assets, less current portions of designated and restricted special funds</td>
<td>$ 116,672</td>
<td>$ 110,328</td>
<td>$ 97,349</td>
</tr>
<tr>
<td>Restricted special funds, including interest receivable and current portion of restricted special funds</td>
<td>85,112</td>
<td>93,378</td>
<td>166,224</td>
</tr>
<tr>
<td>Other assets</td>
<td>271,575</td>
<td>243,089</td>
<td>204,906</td>
</tr>
<tr>
<td>Capital assets</td>
<td>572,023</td>
<td>570,002</td>
<td>578,337</td>
</tr>
<tr>
<td>Deferred outflows of resources</td>
<td>4,424</td>
<td>3,422</td>
<td>4,459</td>
</tr>
<tr>
<td><strong>Total assets and deferred outflows of resources</strong></td>
<td><strong>$ 1,049,806</strong></td>
<td><strong>$ 1,020,219</strong></td>
<td><strong>$ 1,051,275</strong></td>
</tr>
<tr>
<td>Current liabilities, less current maturities of long-term debt and accrued interest</td>
<td>$ 175,093</td>
<td>$ 135,678</td>
<td>$ 157,188</td>
</tr>
<tr>
<td>Long-term debt, net of premiums, including current maturities and accrued interest</td>
<td>26,504</td>
<td>31,414</td>
<td>57,602</td>
</tr>
<tr>
<td>Noncurrent liabilities</td>
<td>272,820</td>
<td>259,612</td>
<td>246,405</td>
</tr>
<tr>
<td>Deferred inflow of resources</td>
<td>575,389</td>
<td>593,515</td>
<td>590,080</td>
</tr>
<tr>
<td><strong>Total liabilities and deferred inflows of resources</strong></td>
<td><strong>$ 1,049,806</strong></td>
<td><strong>$ 1,020,219</strong></td>
<td><strong>$ 1,051,275</strong></td>
</tr>
<tr>
<td><strong>Net Position</strong></td>
<td></td>
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</tbody>
</table>

TABLE TWO: Condensed Statements of Revenues, Expenses and Changes in Net Position

<table>
<thead>
<tr>
<th></th>
<th>2018 (in thousands)</th>
<th>2017 (in thousands)</th>
<th>2016 (in thousands)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating revenues</td>
<td>$ 264,632</td>
<td>$ 234,463</td>
<td>$ 265,352</td>
</tr>
<tr>
<td>Depreciation expense</td>
<td>17,549</td>
<td>17,678</td>
<td>17,485</td>
</tr>
<tr>
<td>Other operating expenses</td>
<td>259,795</td>
<td>229,043</td>
<td>207,111</td>
</tr>
<tr>
<td>Total operating expenses</td>
<td>277,344</td>
<td>246,721</td>
<td>224,596</td>
</tr>
<tr>
<td><strong>Operating income (loss)</strong></td>
<td><strong>(12,712)</strong></td>
<td><strong>(12,258)</strong></td>
<td><strong>40,756</strong></td>
</tr>
<tr>
<td>Investment income (loss)</td>
<td>(1,082)</td>
<td>14,793</td>
<td>11,063</td>
</tr>
<tr>
<td>Interest and amortization expense</td>
<td>(1,841)</td>
<td>(1,104)</td>
<td>(2,136)</td>
</tr>
<tr>
<td>(Increase) Decrease in amounts payable under terms of the power sales agreements</td>
<td>15,635</td>
<td>(1,431)</td>
<td>(49,683)</td>
</tr>
<tr>
<td><strong>Total non-operating income (expenses)</strong></td>
<td><strong>12,712</strong></td>
<td><strong>12,258</strong></td>
<td><strong>(40,756)</strong></td>
</tr>
<tr>
<td><strong>Change In Net Position</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

MMWEC ANNUAL REPORT | 2018
### TABLE THREE: Condensed Statements of Cash Flows

<table>
<thead>
<tr>
<th></th>
<th>2018</th>
<th>2017</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net cash provided by operating activities</td>
<td>$47,615</td>
<td>$15,853</td>
<td>$84,995</td>
</tr>
<tr>
<td>Net cash provided by (used in) investing activities</td>
<td>$(37,450)</td>
<td>76,832</td>
<td>(20,116)</td>
</tr>
<tr>
<td>Net cash used in capital and related financing activities</td>
<td>(36,815)</td>
<td>(71,559)</td>
<td>(79,000)</td>
</tr>
<tr>
<td>Net cash provided by (used in) noncapital financing activities</td>
<td>21,967</td>
<td>4,543</td>
<td>3,142</td>
</tr>
<tr>
<td>Net change in cash and cash equivalents</td>
<td>(4,683)</td>
<td>25,669</td>
<td>(10,979)</td>
</tr>
<tr>
<td>Cash and cash equivalents — beginning of year</td>
<td>$78,345</td>
<td>$52,676</td>
<td>$63,655</td>
</tr>
<tr>
<td>Cash and cash equivalents — end of year</td>
<td>$73,662</td>
<td>$78,345</td>
<td>$52,676</td>
</tr>
</tbody>
</table>

### MMWEC Project Operations

**January 1–December 31**

#### Stony Brook Intermediate

- **Availability**
  - **2018** 84.40%
  - **2017** 94.80%

- **Capacity**
  - **2018** 3.44%
  - **2017** 3.20%

- **Generation MWH**
  - **2018** 93,920
  - **2017** 86,911

#### Stony Brook Peaking

- **Availability**
  - **2018** 95.82%
  - **2017** 92.17%

- **Capacity**
  - **2018** 0.47%
  - **2017** 0.23%

- **Generation MWH**
  - **2018** 6,617
  - **2017** 3,260
MMWEC Project Operations (continued)
January 1–December 31

Seabrook

- **2018**
  - Availability: 92.37%
  - Capacity: 92.18%
  - Generation MWH: 1,166,443

- **2017**
  - Availability: 91.70%
  - Capacity: 91.28%
  - Generation MWH: 1,158,213

Millstone 3

- **2018**
  - Availability: 100.00%
  - Capacity: 100.84%
  - Generation MWH: 515,128
  - 0.84% over capacity

- **2017**
  - Availability: 91.00%
  - Capacity: 91.29%
  - Generation MWH: 466,358

Wyman

- **2018**
  - Availability: 91.37%
  - Capacity: 2.50%
  - Generation MWH: 4,858

- **2017**
  - Availability: 92.71%
  - Capacity: 1.74%
  - Generation MWH: 3,375
Massachusetts Municipal Wholesale Electric Company
Debt Service Coverage Calculation
Years Ending December 31, 2018 and 2017

NET REVENUE AVAILABLE FOR DEBT SERVICE

In accordance with the provisions of MMWEC’s General Bond Resolution (GBR), MMWEC covenants that it shall fix, revise and collect rates, tolls, rents and other fees and charges sufficient to produce revenues to pay all Project operating and maintenance expenses, and principal, premium, if any, and interest on the Bonds. Revenues for each Project, which include applicable interest earnings from investments, are required to equal 1.10 times the annual debt service for each contract year ending June 30, after deduction of certain operating and maintenance expenses and exclusive of depreciation. As such, amounts included in the table below do not reflect December 31 balances. For the contract years ended June 30, 2018 and 2017, MMWEC met the GBR debt service coverage requirements for all of MMWEC’s Projects.

<table>
<thead>
<tr>
<th></th>
<th>2018 (in thousands)</th>
<th>2017 (in thousands)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Revenues</strong></td>
<td>$29,703</td>
<td>$84,382</td>
</tr>
<tr>
<td>Other billings</td>
<td>-</td>
<td>50</td>
</tr>
<tr>
<td>Reserve and contingency fund billings</td>
<td>400</td>
<td>4,588</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>30,103</td>
<td>89,020</td>
</tr>
<tr>
<td>Less — operating and maintenance expenses</td>
<td>25,701</td>
<td>38,556</td>
</tr>
<tr>
<td><strong>Available revenues net of expenses</strong></td>
<td><strong>$4,402</strong></td>
<td><strong>$50,464</strong></td>
</tr>
<tr>
<td><strong>Debt service requirement</strong></td>
<td><strong>$4,002</strong></td>
<td><strong>$45,881</strong></td>
</tr>
<tr>
<td><strong>Coverage (110% required)</strong></td>
<td><strong>110%</strong></td>
<td><strong>110%</strong></td>
</tr>
</tbody>
</table>
“Alone we can do so little; together we can do so much.”

Helen Keller
MEMBERS & PROJECT PARTICIPANTS

Ashburnham Municipal Light Plant*
Boylston Municipal Light Department*
Braintree Electric Light Department
Chicopee Electric Light*
Danvers Electric Division
Georgetown Municipal Light Department
Groton Electric Light Department*
Hingham Municipal Lighting Plant
Holden Municipal Light Department*
Holyoke Gas & Electric Department*
Hudson Light & Power Department
Hull Municipal Light Plant*
Ipswich Electric Light Department*
Littleton Electric Light & Water
Mansfield Municipal Electric Department*
Marblehead Municipal Light Department*
Middleborough Gas & Electric Department
Middleton Electric Light Department
North Attleborough Electric Department

Paxton Municipal Light Department*
Peabody Municipal Light Plant*
Princeton Municipal Light Department**
Reading Municipal Light Department
Russell Municipal Light Department*
Shrewsbury Electric & Cable Operations*
South Hadley Electric Light Department*
Sterling Municipal Light Department*
Templeton Municipal Light & Water Plant*
Wakefield Municipal Gas & Light Department*
West Boylston Municipal Light Plant*
Westfield Gas & Electric
Pascoag (RI) Utility District
Green Mountain Power Corporation (VT)
Hardwick (VT) Electric Department
Ludlow (VT) Electric Light Department
Morrisville (VT) Water and Light Department
Stowe (VT) Electric Department
Swanton (VT) Electric Department

* MMWEC Member and Participant
** MMWEC Member Only
The Massachusetts Municipal Wholesale Electric Company (MMWEC) is a not-for-profit, public corporation and political subdivision of the Commonwealth of Massachusetts, created in 1976 through an Act of the Massachusetts General Court. MMWEC provides a broad range of power supply, financial, risk management and other services to enhance the competitiveness of Massachusetts municipal utilities. MMWEC also is the operator and principal owner of the Stony Brook power plant, a 527-megawatt, combined-cycle generating station located at MMWEC’s Energy Center in Ludlow, Massachusetts.

Copies of the report and supplemental financial information can be obtained, free of charge, by contacting:

Communications and External Affairs
Massachusetts Municipal Wholesale Electric Company
327 Moody Street
Ludlow, MA 01056
Email: mmwec@mmwec.org
Web: www.mmwec.org