

## **MARBLEHEAD MUNICIPAL LIGHT DEPARTMENT**

To the citizens of Marblehead,

The Marblehead Municipal Light Department (MMLD) is pleased to share its 124<sup>th</sup> annual report and financial statements for the calendar year ending December 31, 2018.

### **Top-line Results:**

In 2018 MMLD delivered 104,440 megawatt-hours (MWh) of electricity to 10,276 Marblehead customers, generating revenue of \$17,390,445. The 2018 annual load was essentially flat compared with the prior five-year (2013-17) average of 104,313 MWh. The revenue increased 8.8% versus the same prior five-year period. The winter peak of 23.86 MWh occurred on January 1st from 6-7pm, the summer peak of 30.25 MWh occurred on August 29th, from 5-6pm. The ISO-NE grid annual peak of 25,559 MWh occurred on August 29<sup>th</sup>, from 4-5 pm. In 2018 we had three months- January, August and September, when the monthly load exceeded 10 MWh, versus no occurrences in 2017.

In 2018, 70% of the electric power supplied to Marblehead residents was carbon-free, compared to 71% carbon-free in 2017.

### **2018 Weather Conditions & Impacts on Electric Power Distribution**

In early 2018, extreme weather conditions impacted the normal supply and delivery of electricity throughout New England. An Arctic air mass brought a cold weather stretch that lasted 15 days, from Dec 25th, 2017 to January 8<sup>th</sup>. The extreme cold temperatures combined with above average winds to become one of the most extreme recorded cold waves in 100 years. New England average temperatures were below normal for 13 or more consecutive days, with 10 days averaging more than 10 degrees F below normal. The extreme cold weather conditions resulted in New England's electric power grid operator, ISO-NE, to declare an "Abnormal Conditions Alert" that spanned nine days, from Jan 3rd to Jan 9<sup>th</sup>. The cold temperatures increased demand for natural gas beyond New England's supply. With residential home heating taking priority over electric utility generation, the ISO-NE fuel mix was required to shift dramatically from Dec 24<sup>th</sup> to January 6<sup>th</sup>: natural gas consumption dropped from 38% to 19% and oil increased from 2% to 36%. The sudden increase in oil demand created a new concern over the supply of oil to the region. Nuclear power during this period dropped also dropped, from 39% to 22%. In Marblehead, the January 2018 demand for electricity was 11.4% higher than in January 2017.

Both February and March 2018 were slightly warmer than in 2017. February energy demand was 1.1% higher and March demand 0.4% higher. But successive nor'easter storms in March caused significant interruptions to normal ISO-NE and Marblehead MLD operations. ISO-NE declared "Abnormal Conditions Alerts" that spanned 10 days in March: March 7-9, March 12-15 and March 20-22. In Marblehead Friday, March 2 and Saturday, March 3 were the two days with the biggest impact on operations. All residents will remember the high tides that flooded local streets and high winds that toppled trees, broke tree limbs, and caused considerable damage town wide. During those two days our automated meter monitoring system documented 11 different outage events that impacted 265 customers...equal to 2.6% of all MMLD customers. Given the high number of outages reported in a short time period, the average time to restore service was 13.1 hours...much longer than MMLD's typical response time. In June, FEMA declared the March 2-3 storm a federal disaster (FEMA-4372-DR), making the Town and MMLD eligible to apply for assistance under the FEMA Hazard Mitigation Grant Program. For the month of March, there were a total of 13 outage events, the highest number of outage events in a single month in 2018.

The March storm tides also severely eroded the coastal shore side of the berm at the Lead Mills, in Marblehead. Along the top of the berm lies the right-of-way that connects Marblehead to Salem. Buried within the berm are the high voltage electric supply lines to Marblehead. Shortly after the March storms the Marblehead Conservancy brought the coastal erosion/berm damage to MMLD's attention. The potential for damage to the supply lines was identified as a top priority risk at the town's Municipal Vulnerability Preparedness (MVP) workshop in May 2018. A consensus quickly formed to take immediate repair action. A coordinated effort among multiple town departments, including the Selectmen's Office, Engineering Department, Dept. of Public Works, and Dept. of Health, resulted in a plan to repair and harden the berm, and to complete the work by November. N. Granese & Sons was the contractor selected to do the work. They completed the work on time. MMLD paid the \$135,240 project expense, and has applied to FEMA for federal disaster reimbursement assistance.

Summer started with normal June temperatures and slightly below average rain. The months July, August and September had slightly higher temperatures...2.7, 5.3 and 3.0 degrees F above normal, and max temperatures of 98, 98 and 97 degrees. Rainfall totals in July, August and September were 3.68, 4.55, and 4.65 inches...amounts that were above the monthly average rainfalls by 1.1, 1.3, and 1.7 inches. Both July and August had 11 outage events per month. Three related outages on Friday, August 24<sup>th</sup> were the most significant. The outages occurred in

rapid succession shortly after 12 noon in the Commercial St substation, impacting 1,462 customers between 90 to 150 minutes. MMLD's extensive knowledge of the town's electrical distribution system, technical expertise and teamwork combined to minimize the outage duration. An independent electric utility test and maintenance vendor was also called, and arrived quickly on-scene to assist in the restoration of safe, normal operations. Their report indicated the outage was due to excessive dust accumulation from the Commercial St building renovation, in combination with rainwater moisture that found its way to an electro-mechanical component. Ultimately the moisture caused the component to fail. Once the diagnosis was confirmed, the steps to prevent the problem from happening again were put in place.

On Wednesday, October 17<sup>th</sup> an unusual weather pattern appeared in the late afternoon, that some described as a microburst. The weather pattern included very localized dark clouds, high winds and rain. On Elm Street, near the Gerry School, high winds violently snapped multiple tree limbs from mature maple trees on private property, onto MMLD power lines. The force exerted by the tree limbs on the power lines carried to two utility poles on Elm Street. Both poles snapped completely, one at the base and the other at mid-pole. Transformers were mounted on both poles, adding to the complexity of the repair. Fortunately no one was hurt by the high winds, downed tree limbs, or power lines on the ground. But given early police reports of possible fallen wires on a car, and the proximity of the downed wires and poles to the Gerry School playground, MMLD personnel immediately shut down power to the area until a complete assessment of the damage could be made. The outage event report indicated 133 people were without power. Power was restored to 33% of the customers within two hours. Power for remaining customers in the area directly impacted by the downed poles was restored in 5-6 hours.

### **2018 Changing Fuel Mix of our Power Supply**

With the growing awareness and concern regarding climate change, MMLD has been evaluating where and how we source electricity, and assessing new options for increasing the percentage of our power portfolio that is carbon-free. Based on the numbers supplied to us by our wholesale power partner MMWEC, MMLD is pleased to report that 70% of the power we sold to our Marblehead customers in 2018 is carbon-free. Our 70% carbon free power sources include nuclear 44%, hydro 15%, wind 7%, solar 1%, and other renewables 3%. 48% of our power was supplied via pre-existing power purchase agreements, and the remaining 52% was purchased in open ISO-NE energy markets. In 2017 our carbon-free percentage was 71%. For additional details on how we calculate this number, please visit our website at [marbleheadelectric.com](http://marbleheadelectric.com)

## **2018 Accomplishments and Major Activities**

- In March, the MMLD Board voted to approve a motion to participate in the Berkshire Wind Power Purchase Agreement - Phase 2. Marblehead is one of ten municipalities participating in Phase 2. Marblehead agreed to purchase 13.478% of the Phase 2 capacity, equivalent to 0.62 MW. When combining Phases 1 and 2, our total Berkshire Wind capacity will be 1.62 MW.
- In April, MMLD moved into our newly renovated main office at 80 Commercial St. from temporary offices on Tioga Way. One key element of the design was the addition of a second garage, to provide all department trucks access to inside parking space. The main office area is now consolidated on one level, in an area that formerly housed a diesel generator. The overall footprint of the renovated building also incorporates the Commercial St substation, one of four high voltage substations in town. The project included considerable site prep, including drilling 21 wells into rock ledge to supply the geothermal heat pump for building heating and cooling, the removal of ledge to expand parking, and asbestos removal from multiple locations in the building. The design by Winter Street Architects is expected to receive a LEED Silver certification. The final estimated total project cost is \$8.7 million, with \$4.2 million paid from an existing reserve account for asset replacement and \$4.5 million in the form of a 15 year loan at 3.31% interest, included in a pooled loan managed and placed by MMWEC. The timing of the building note coincides with the retirement of earlier MMWEC loans that financed Power Sales Agreements in our power portfolio.
- During the first eight months of 2018, MMLD line crews completed the installation of 1,900 new LED street lights. On main streets the line crews installed 375 new LED street lights with 7100-lumen brightness and 4000K-color temperature. On side streets line crews installed 1,525 new LED street lights with 3200-lumen brightness and 3000K-color temperature. MMLD's purchase price for the lights was \$230,000, with a Mass DOER grant for \$115,000, equal to 50% of the purchase price. The estimated annual reduction in power required for street light illumination is 48%, representing an estimated annual savings of \$63,000 per year. The installations were completed prior to the DOER program deadline of September 1, 2018.
- In the spring MMLD worked with members of Sustainable Marblehead to support the passage of Article 45 at the April Town meeting. Article 45 compelled the Town to go on record in support of "a goal of using

100% Carbon Free energy in Marblehead, including in electricity production, building energy use, and transportation, and move with fiscal responsibility and all deliberate speed to achieve this goal.”

- In May MMLD received notice from the American Public Power Association that we had been awarded a \$57,500 Demonstration of Energy and Efficiency Development (DEED) grant, in support of our project with the Federal DOE National Renewable Energy Lab to determine the optimal designs for new renewable energy and battery storage in town. The NREL project is now expected to occur in the spring, 2019.
- In May, voters in Marblehead re-elected Board member Mike Maccario to a second three-year term, and elected new Board member Karl Johnson to a first three-year term.
- Technical Operations Manager Colin Coleman and Senior Operations Specialist Jack Ravagno continued year-long efforts, working with outside vendors Peaker Services and Acentech, to complete the air emissions and sound level mitigation upgrades required to return the 5 MW Wilkins Plant to full operational status. Since November 2015, the DEP has prohibited the Plant from operating, pending MMLD compliance with applicable EPA and DEP regulations. As recognized in the town’s Municipal Vulnerability Preparedness assessment conducted in May 2018, the Wilkins Plant has an important role in the town’s resiliency and emergency response capability: It is the only electric power generator in Marblehead capable of distributing electricity widely to residents in the event of an emergency.
- Year-long MMLD distribution system preventive maintenance and troubleshooting by Distribution Manager Bill Jackson and his skilled line crew included the setting of 23 new poles, ongoing replacement of power distribution components on poles townwide, and the clearing of tree limbs on or near power lines and poles.
- September participation in the National Drive Electric Week, including Tesla, Chevrolet and Nissan electric vehicles on display, information on MMLD’s Free ChargePoint EV Charger program, and new EV car discounts, was held at the Marblehead Farmers Market.
- In 2018 48 MMLD customers with solar panels on their home or business sold their excess renewable energy to MMLD. MMLD’s total solar power purchase was 185 megawatt hours.
- In 2018 five EV owners enrolled in the MMLD Smart Charging Program and received a free ChargePoint Level 2 charger from MMLD. The five 2018 participants represents an increase from the three customer enrollments in 2017. However the percentage of enrolled customers seems low when compared to 81 Marblehead EV owners now registered in the

Mass MOR-EV program (The Mass Offers Rebates for Electric Vehicles program provides new EV owners with a rebate of up to \$2500 on their EV purchase.) To learn more how you can get a free ChargePoint Level 2 charger, please visit our website <https://www.marbleheadelectric.com/ev-vehicles-chargers.html>

- Under the guidance of Lead Customer Services Representative Megan Milan, MMLD continued its participation in MMWEC sponsored Home Energy Loss Prevention Services (HELPS) Program. HELPS provides Marblehead residents cash rebates of up to \$500 on the purchase of a range of energy efficient appliances, heat pumps, smart thermostats and home efficiency upgrades; and free home energy efficiency audits. Visit our website for details: <https://www.marbleheadelectric.com/rebates-incentives.html>

### **MMLD Employee Recognition**

Without a doubt, the MMLD's most important asset is our highly skilled workforce. The focus and dedication of our employees is essential to our mission: Deliver reliable, cost competitive and environmentally responsible electric power to Marblehead customers, while ensuring a safe and healthy work environment for all.

- In 2018 the Northeast Public Power Association (NEPPA) conducted 11 in-house training sessions for all MMLD field operations personnel.
- Lineman 1<sup>st</sup> Class Kirk Blaisdell and Electric Utility General Technician Nate Kobiarka, attended training classes at the NEPPA training facility in Littleton, MA
- Employees celebrating a work anniversary in 2018: Didi Rubano, Lead Meter Technician, celebrating her 10<sup>th</sup> work anniversary at MMLD
- New employees in 2018: Joe Kowalik, General Manager; Rich Dixon, Second Class Lineman

The department also wishes to acknowledge the contributions made by Andrew Hadden, who served as General Manager from 2014 to 2018. We wish him well in his future endeavors.

Respectfully submitted,

Joseph T. Kowalik, General Manager  
Michael A. Hull, Commission Chairman  
Walter E. Homan, Commissioner  
Michael A. Tumulty, Commissioner  
Michael J. Maccario, Commissioner  
Karl A. Johnson, Commissioner

## MUNICIPAL LIGHT DEPARTMENT

### BALANCE SHEET

For the year ending December 31, 2018

#### Assets

Plant Investments		19,708,928.15
Current Assets:		
Cash - Operating	3,393,683.79	
Petty Cash	500.00	
Construction	18,908.88	
Accounts Receivable	2,875,847.19	
Interest Receivable	0.00	
Materials & Supplies	94,921.79	
Total Current Assets		6,383,861.65
Depreciation Fund		6,176,015.89
Insurance Escrow Account		981,471.41
Hydro Savings Reserve		42,108.77
MMWEC - NEPEX Reserve Trust		387,476.18
Rate Stabilization Reserve		900,000.00
Consumer Deposits		211,875.00
Prepayments		1,456,652.47
Pooled Financing Reserve-MMWEC		510,768.64
MMWEC 2015A Peabody Project		202,277.36
Total Assets		<u>36,961,435.52</u>

#### Liabilities And Surplus

Accounts Payable:		
Depreciation	83,157.13	
Operating	2,543,693.51	
Construction	0.00	
Consumer Deposits	2,600.00	
Total Accounts Payable		2,629,450.64
Consumer Deposits		209,275.00
Reserve for Uncollectible Accounts		287,301.81
Reserve for Future Compensated Absences		84,234.28
Accumulated Provision For Rate Stabilization		900,000.00
Opeb Liability		828,000.00
Contribution In Aid For Construction		178,416.85
Unappropriated Earned Surplus		31,844,756.94
Total Liabilities And Surplus		<u>36,961,435.52</u>

## MUNICIPAL LIGHT DEPARTMENT

### STATEMENT OF INCOME

For the year ending December 31, 2018

Operating Revenue		17,341,385.96
Less Expenses:		
Operating	14,022,784.01	
Maintenance	1,338,337.72	
Depreciation	<u>1,526,382.57</u>	
Total Expenses		<u>16,887,504.30</u>
Operating Income		453,881.66
Interest Income		52,908.46
Other Income		<u>0.00</u>
Less Interest on Long Term Debt		<u>58,869.18</u>
Net Income Transferred to Surplus		<u>447,920.94</u>

### STATEMENT OF SURPLUS

For the year ending December 31, 2018

Balance December 31, 2017	31,891,714.74
Add: Credit balance transferred from income	447,920.94
Adjustment to transfer prior years	
Power Refunds to surplus	<u>0.00</u>
Subtotal	32,339,635.68
Deduct: Amount transferred to Town Treasurer to reduce the Tax Levy	(330,000.00)
In Lieu Of Tax Payment to City Of Salem adjusting entries for year ended December 2017	<u>(4,358.46)</u>
Balance December 31, 2018	<u>31,844,756.94</u>



**MUNICIPAL LIGHT DEPARTMENT**

**OPERATING EXPENSES**

For the year ending December 31, 2018

Power Generation Expenses:		
Fuel	9,364.50	
Generating Expense - Lubricants	(893.80)	
Misc. Other Power Generating Expense	7,903.00	
Maint. of Other Power Generation	<u>131,840.74</u>	
Total Power Generation Expense		148,214.44
Power Supply Expenses:		
Electric Energy Purchased	8,678,788.52	
Misc. Purchased Power Expense	<u>2,463,128.12</u>	
Total Power Supply Expenses		11,141,916.64
Transmission Expense:		
Maintenance of Overhead Lines		0.00
Distribution Expenses:		
Station Expense - Labor & Other	25,548.25	
Station Expense - Heat & Electricity	35,500.78	
Street Lighting	9,144.33	
Meter Expense - Inspection, Testing, Removing, Resetting	73,274.12	
Customer Installation Expense	35,088.73	
Misc. Distribution Expense	200,221.41	
Maintenance of Structures	0.00	
Maintenance of Station Equipment	77,775.22	
Maint. of Overhead & Underground Lines	942,546.73	
Maintenance of Line Transformers	67,776.05	
Maintenance of Meters	<u>9,837.25</u>	
Total Distribution Expenses		1,476,712.87
Customer Account Expenses:		
Supervision of Customer Accounting	110,137.07	
Meter Reading - Labor & Expenses	35,088.72	
Customer Records & Collections	216,131.17	
Uncollectible Accounts	17,282.22	
Interest Paid on Consumer Deposits	<u>3,025.87</u>	
Total Customer Account Expenses		381,665.05
Advertising, Conservation, Energy Audits		85,895.89
Administrative & General Expenses:		
Administrative Salaries	244,309.55	
Office Supplies & Expenses	266,165.29	
Outside Services Employed	100,331.48	
Property Insurance	38,471.15	
Injuries & Damages	10,600.75	
Rents	47,286.21	
Employee's Pensions & Benefits	1,270,085.03	
Maintenance of General Plant	26,516.43	
Transportation	82,045.30	
Miscellaneous General Expense	<u>40,905.65</u>	
Total Administrative & Gen. Expenses		2,126,716.84
Total Operating & Maintenance Expenses		<u>15,361,121.73</u>