

# MUNICIPAL LIGHT PLANT

David G. Wood, Director

Concord Light (“CMLP”) is a community-owned electric utility, created for and by the citizens of Concord in 1898. The goal then, as now, was to provide reliable and reasonably priced service in a responsive and thoughtful manner. Our mission is to partner with our customers, civic institutions, and employees to foster a vital community, in the near and in the long term, in which to live, raise a family, work, and operate a business. Our 2018 – 2025 Strategic Plan, available at [concordma.gov/cmlp](http://concordma.gov/cmlp) describes our goals:

- Maintain service reliability at a very high level;
- Maintain or increase customer satisfaction and perception of value;
- Provide energy-related services to as many customers as possible;
- Increase revenue and net operating income modestly;
- Reduce greenhouse gas emissions

Our work in 2020 focused on a number of initiatives designed to achieve those goals.

The Town Manager appoints a five member, volunteer Light Board comprising local residents. Current Light Board members include Gordon Brockway, Brian Foulds (Clerk) Pamela Hill, Alice Kaufman (Chair), and Wendy Rovelli.

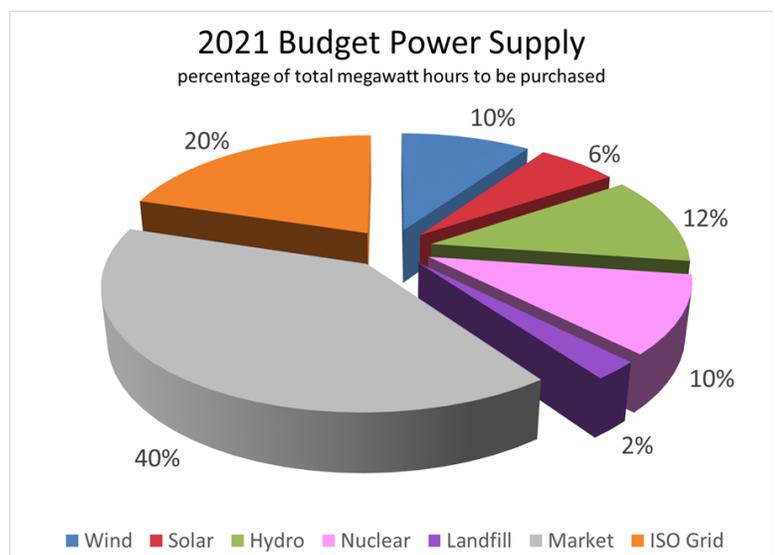


The Board meets monthly to discuss and/or vote on topics such as rates, power supply and renewable energy options. The Board encourages customers to attend.

The Concord Municipal Light Plant (CMLP) operates as an Enterprise Fund within the Town government. No property tax money is required or used to operate the Light Plant. All operating expenses including electricity purchases, capital investments, and debt service are paid by the Light Plant customers. In addition, the Light Plant contributes to the Town’s operating budget via a Payment-in-Lieu-of Taxes (PILOT). For 2020, this formula based payment was \$478,000.

## Power Supply

All power supply expenses are passed to CMLP’s customer-owners at cost. Power Supply includes the cost of energy, capacity, and transmission. Capacity and transmission are two market services provided by the regional Independent System Operator at Federal Energy Regulatory Commission regulated rates. Energy supply, including the reliable provision of electricity and its price, are managed by CMLP. CMLP has developed a power supply portfolio from multiple sources under a power supply strategy that best suits our community’s needs.



## Non-Carbon Emitting Sources

Project	Location	Year Purchased	% of needs
Canton Mountain Wind	Canton, ME	2017	2%
Seabrook Nuclear	Seabrook, NH	2017	20%
Granite Wind	Coos County, NH	2018	1.5%
Existing Hydro	Housatonic River, CT	2019	3.4%
Chariot Solar	Hinsdale, NH	2019	2.7%
Cabot/Turners Falls	Connecticut River, MA	2020	12.5%
Seabrook Nuclear	Seabrook, NH	2020	15%
Rox Wind	Roxbury, ME	2020	3.6%
Gravel Pitt Solar	CT, MA or NH	2020	1.9%

As a result, CMLP has developed a diverse power supply portfolio with a wide variety of suppliers and resources. The chart below shows the sources and fuels that make up the generation portion of CMLP’s supply portfolio.

Generation Year	Associated RECs Retired	Purchased RECs Retired	Total RECs Retired	% of Sales
2020	27,281	43,028	70,308	44%
2019	27,239	55,703	82,942	50%
2018	19,115	74,256	93,371	54%

### Non-Carbon Emitting

CMLP is actively replacing fossil-based generating resources with carbon-free sources in a fiscally responsible manner. Below is a list of recent power purchases from non-carbon emitting sources.

In 2018 CMLP began collecting an extra \$0.01 per kilowatt hour from customers on all energy sales in order to establish a fund to pay for the purchase of Massachusetts Class 1 renewable energy certificates (“MA Class 1 RECs.”) In September 2020 the charge was increased to 0.015 per kilowatt hour, and on January 1, 2021 the charge was increased to 0.02 per kilowatt hour. The table below shows how many RECs were retired by generation year and where the RECs came from – whether they were associated with the purchase of physical energy or purchased separately. Note, CMLP will not complete the purchase of non-associated 2020 RECs until June 15, 2021. The figure provided for 2020 “Purchased RECs Retired” is only an estimate. CMLP’s REC purchase strategy purposefully sets the cost of the

program at a fixed level while letting the amount of RECs purchased in any year to float based upon the market price of RECs. That program feature prevents the attainment of carbon neutral power from significantly increasing rates. Like commodity prices, REC prices fluctuate with supply and demand. 2018 REC prices were generally less than \$0.01/kWh. 2019 REC prices averaged \$0.029/kWh. So far 2020 REC prices are averaging \$0.045/kWh, or 5 times the price of 2018 RECs.

Despite the increase in REC prices, CMLP is on track to meet its goal of 100% non-emitting electricity by 2030. New hydro and nuclear supply contracts coming online will increase the total amount of ME Class 2 and EFECs that CMLP will be able to retire. In 2023 new wind and solar supply contracts will increase the total amount of MA Class 1 RECs. Finally the renewable energy surcharge increase will broaden the funds available to offset the cost of either non-associated MA Class 1 REC purchases or renewable energy

contracts. At current market prices, CMLP would retire RECs equal to approximately 72% of its total 2021 electricity purchases and perhaps 74% of its sales. As CMLP's purchases of energy from resources with certificates increases further in 2022 and beyond, it is expected that CMLP will be able to retire RECs equal to as much as 90% of its purchases with REC prices remaining at current levels.

CMLP will continue expanding its percentage of non-carbon emitting power as market economics allow without increasing rates substantially.

### **Energy Management**

CMLP's energy management services help our customers manage their energy costs and reduce their carbon emissions through electrification, improved efficiency, and generation of carbon-free solar power at their home or business.

### **A Guide for New Homeowners**

In 2020, CMLP prepared a guide to the services and rebates available from CMLP and CPW that can make our customers' new homes more comfortable, save them money and reduce their carbon emissions. The new guide is available at [concordma.gov/1752/Your-Home](http://concordma.gov/1752/Your-Home).

### **Electric Vehicles**

Due to constraints imposed by the pandemic in 2020, a focus was put on providing virtual resources to help customers transition to EVs including an April e-newsletter and social media posts featured an EV video playlist and a Virtual Test Drive portal.

Over 500 CMLP customers responded to a survey, "Your Future Vehicle Choice," about their EV purchasing plans and attitudes about driving electric. Over 68% responded that they may consider purchasing an EV in the next few years. Respondents said the top purchase influence factors were lower carbon footprint (65.1%), followed by a cash rebate (62.6%), air quality benefits (57%) and/or savings on fuel & maintenance (51%).

In place of an in-person Ride & Drive event, CMLP organized a virtual Local Dealership Roundtable for Car Buyers in October which had 69 participants. In addition, CMLP's free Electric Vehicle Toll-Free Support Line and Email, handled over 120

interactions with 68 unique customers in 2020.

In 2020, CMLP launched two programs to help multi-dwelling units (MDUs) install EV charging infrastructure for their residents: the EV Ready Pilot Program and the Shared Charger Program. In 2020, the EV Ready Pilot Program was completed with Riverwalk, Center Village and Milldam Square Condominium Associations. The Pilot Program has created examples of EV charging infrastructure designs at MDUs with different parking area types. The Shared Charger Program offers MDUs the opportunity to have CMLP install, own, and operate one dual-port shared charging station on MDU property, the first charging station was installed at Concord Greene in 2020.

### **Heat Pumps**

Over 100 Concord residents attended Climate-Friendly Heating and Cooling Community Events held on February 29th at the Harvey Wheeler Community Center and on March 4th in Wayland. CMLP co-sponsored the events with Concord's Sustainability Division and the HeatSmart Alliance, a coalition of area communities working together to promote sustainable heating and cooling.

Through a subcontract with Energy New England, Abode Energy Management is now providing our customers with access to heat pump experts, a participating installer list and a quality assurance process for heat pump installations.

CMLP was awarded a \$38,000 DEED grant from the American Public Power Association to pilot a Heat Pump Coaching Program. In December, two part-time heat pump coaches were hired on CMLP's behalf: Concord residents Geoff Tritsch and Ethan Herberman. Geoff and Ethan start work in January 2021. Coaches are trained and mentored by Abode's Heat Pump Specialist.

CMLP rebates supported installations of 36 air source heat pumps, 2 ground source heat pumps and 8 heat pump water heaters in 2020.

### **Home Energy Assessments**

Sixty-four customers received home energy assessments from CMLP in 2020, most done via video during the pandemic.

### **Residential Energy Efficiency Rebates**

29 residential customers received rebates in 2020 for weatherizing their homes or purchasing and installing LED light bulbs. CMLP broadened its weatherization rebate program beyond electrically heated homes in 2020, to include homes heating with oil and propane.

### **Commercial Energy Efficiency Rebates**

In 2020, business customers received almost \$30,000 in rebates through CMLP's High Efficiency Lighting Program. CMLP also began offering air source heat pump and heat pump water heater rebates to business customers in 2020.

### **Solar Photovoltaic (PV) Rebates**

In partnership with Energy New England and the Massachusetts Department of Energy Resources (DOER), CMLP continued its participation in the MLP Solar Rebate Program, which provides an additional \$1,200 per kW for installed solar capacity up to 25 kW, funded with matching contributions from CMLP and DOER. The MLP solar rebate supplements CMLP's traditional solar rebate of \$625 per kW installed, up to 5kW.

Twenty-four customers received CMLP's traditional solar rebate and 14 received MLP solar rebates. There are now a total of 380 PV systems on residential and commercial rooftops in Concord with a combined capacity of 3.8 MW DC.

### **Community Service**

Annual holiday tree lighting: CMLP line crew decorated trees with energy-efficient LED lighting for the holidays in the West Concord business district and at Monument Square.

Open Table Food Pantry: CMLP employees collected donations for the Open Table food pantry including food, adult personal care items, and diapers for babies. The donations were delivered to Open Table and were distributed to families in need.

Residential Rate Assistance: CMLP began our Residential Rate Assistance program in 2006 to help Concord residents in financial need. Eligible customers are able to lower their bills by as much as 50%. As of December 2020, there were 138 Electric

and 26 Water customers enrolled in this program.

COVID-19 Assistance: For Concord residents and businesses in financial need during the COVID-19 pandemic, Concord Utilities temporarily suspended the collection process and disconnection of all utilities, as well as late payment charges for non-payment. Concord Utilities Customer Service Representatives worked with customers experiencing financial hardship to devise payment plans and offer assistance packages in conjunction with other Town services.

### **Concord Municipal Utilities Customer Service**

CMLP collaborated with the Public Works Water & Sewer Department, Town Accountant, and Deputy Treasurer to consolidate customer service for all Town utilities into one team. The Concord Municipal Utilities team is housed at CMLP and provides service and support to residential and commercial services for electric, water, sewer, and broadband. Customers can contact Customer Service at 978-318-3101 or [concordutilities@concordma.gov](mailto:concordutilities@concordma.gov).

### **Enterprise Software**

CMLP partnered with NISC (National Information Solutions Cooperative) to implement new enterprise software beginning in May 2019. This was a multi-year implementation including several modules such as the new customer information and billing system and SmartHub®, the customer self-service portal.

Concord Utilities offers customers paperless billing and payment options including making a payment via SmartHub, credit card, Internet banking, or with our automated phone system. Customers can opt to receive one bill for all their utilities or to have multiple accounts mailed together in one envelope.

Customers can also register for a SmartHub account or download the free app for their smartphone or tablet to access information, receive updates, pay bills and more. Customers can now report an outage, line down or other power-related emergency using SmartHub. As of December 2020, there were 3,785 customers registered with SmartHub accounts.

## **Operations and Engineering**

COVID-19 forced the Light Plant to adjust our priorities, schedules, workloads and staffing allocations. Our main focus was, and continues to be, providing safe and reliable electric power and broadband to our customers. This year CMLP had to reprioritize operational responses and project work to essential tasks only. This was done to protect our employees, citizens and the distribution system. The largest driver for the altered work schedules and staffing, was the fear of having all operations personnel out sick at the same time. If CMLP experienced a mass illness event, there would be no one to operate the distribution system or respond to emergencies. Even with all of the adjustments and disruptions, CMLP was still able to accomplish quite a few things.

### **Underground Direct Buried Upgrade**

Bartkus Farm subdivision direct buried replacement project was started as part of CMLP's direct buried replacement program. The project had a slow start due to staffing levels as a direct result of COVID-19 protocols. CMLP plans to complete this project in early 2021, as protocol allows. As part of this and other direct buried projects, CMLP crews installed a new underground primary and secondary electrical and communication duct bank, new underground primary and secondary cable, devices, and transformers. Of note, the associated direct buried services are privately owned and are the responsibility of the owner to maintain and replace at their expense.

### **Underground Conversion Projects**

As part of the Cambridge Turnpike Improvement Project (CPW Project), CMLP extended the existing underground ductbank along Lexington Road near Cambridge Turnpike. The installation of this ductbank allowed for the overhead to underground conversion of Circuit 223-H6 along Lexington Road through the new intersection with Cambridge Turnpike. Additionally two new switchgear devices were installed on the new underground line. In 2020, we were able to convert all of the services in section one to underground. We also upgraded the street lighting removed overhead conductors and utility poles. This conversion, along with the entire Cambridge Turnpike Project, greatly improves the reliability,

expansion of broadband services and visual impact in the area. CMLP plans to continue work on Cambridge Turnpike in 2021.

### **Substation Safety, Security and Efficiency Upgrades**

The exterior lighting at Substation 223 has been upgraded to high-efficiency/low-maintenance LED lighting. This increased the safety and security of the building and grounds. Photoelectric/motion sensors were installed in various locations to ensure that lighting only comes on when needed.

### **Substation Equipment Maintenance**

Routine preventive maintenance was performed on critical equipment at Substations 219 and 223 this year. Generally, this type of maintenance occurs every three years. Transformer relays, circuit breakers and batteries preventive maintenance was performed. This preventive maintenance is critical to the reliability of our system. By maintaining our equipment on a regular basis, we ensure reliable and safe electric service for our customers, while extending the usable life of the equipment.

### **Tree Trimming**

Another vital part of our preventive maintenance program is tree trimming. This year, CMLP completed tree trimming of overhead conductor areas south of Route 2, or approximately one half of the Town. The tree trimming will help to ensure a reliable and safe electric distribution system. We plan on trimming the trees north of Route 2 in 2021.

### **Substation Metering Upgrade Project**

Power quality meter replacement is required at both of CMLP's Substations. These meters are needed to measure power consumption, loss, efficiency, etc on all distribution feeders. Unfortunately this project was delayed this year as a direct result of the pandemic and is planned to move forward in 2021.

### **Emergency Storm Response**

Several storms affected Concord this year. The October Wind Storm created a wide path of destruction in Concord as well as the surrounding areas. As a result of this storm, over one third of our customers lost power. CMLP responded to these



*Emergency Response from August Storm*

outages and worked around the clock until our customers had their power back.

### **H2 Recloser Replacement and Monument Square Flagpole Lighting Upgrade**

CMLP replaced the H2 Recloser this year due to age and condition of the equipment. We also took the opportunity to upgrade the control module for this recloser. The new control module will give CMLP engineers greater visibility and control over this very important distribution device. The new recloser has added resiliency and reliability to our distribution system.

We also upgraded the Monument Square Flagpole Lighting this year. The need for an upgrade was identified after failures of the previously installed spotlights. The replacement lights are now high efficiency LED fixtures, which should operate for many years while using less energy.

### **Infrared Inspection of Distribution System**

As part of CMLP's routine maintenance and inspection program, an infrared inspection and analysis was performed on the overhead and some underground areas of the distribution system in 2020. This type of inspection provides reliable data that allows CMLP engineers to determine if and what is defective and needs replacement. By identifying and repairing defects far in advance, we all benefit from a reduction in downtime and an increase in reliability.

### **Telecommunications**

2020 was the sixth full year of operation for CMLP's Broadband service. Operating as "Concord Light Broadband," the demand for the service has remained steady and community support and feedback has been excellent.

Subscriptions grew to 1484 residential and business accounts between January and December 2020, a net increase of 85 subscribers for the year. Revenues in 2020 exceeded \$1.3 million, a 15% increase over 2019. Operating costs are in line with expectations. Since the end of 2016, Concord Light Broadband has been generating sufficient operating income to cover the expected operating expenses. Within the next year or so, we expect to be able to fund growth out of current revenue as well.

We were able to implement our third across the board speed increase while pricing for the services remained steady in 2020. In fact, we have never had a price increase from our initial offering in 2014. The plans offer fully symmetrical bandwidth (matching upload and download speed). Information about the offerings is on the Town's web site at [concordma.gov/broadband](http://concordma.gov/broadband). Concord Light Broadband has a staffed help desk that answers calls for assistance 24 hours a day, seven days a week.

The ability to cost effectively deploy advanced secure telecommunications to municipal facilities is a benefit of having in-house telecommunications operations. In 2020, the telecom staff, working with Town IT staff, participated in projects to support the Town's network.

In 2020, CMLP continued to provide additional leases for "dark fiber". The lease agreements provide access to CMLP fiber telecommunication providers or businesses who wish to gain access to premises in Concord. CMLP earns revenue from the fiber leases and customers benefit from faster, less-expensive installations and access to advanced telecommunication services.