

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 www.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 2021 focused on several 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 (Clerk), Brian Foulds, Pamela Hill, Alice Kaufman, and Wendy Rovelli (Chair).



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.

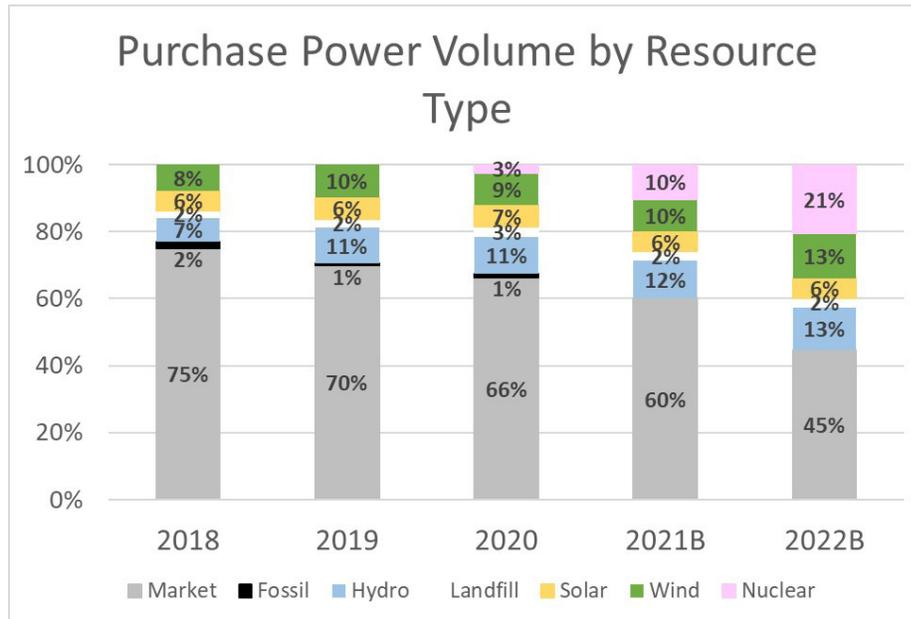
The Concord Municipal Light Plant (CMLP) operates as an Enterprise Fund within the Town government. No property tax money is required or used to operate the Light Plant. All operating expenses including electricity purchases, capital investments, and debt service are paid by the Light Plant customers. In addition, the Light Plant contributes to the Town’s operating budget via a Payment-in-Lieu-of Taxes (PILOT). For 2021, this formula based payment was \$451,500

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. The power supply selection strategy included the following tenets:

- Diversified energy supply sources and fuel diversity
- Short and long term agreements to mitigate risk
- Peaking and base load supply sources to match needs
- Inclusion of cost competitive renewable energy sources
- Competitive bids for partial energy agreements on a rotating basis to minimize differences between our cost of power and current markets.

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.



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.

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%
Broadleaf Solar	CT, MA or NH TBD	2021	4.3%

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

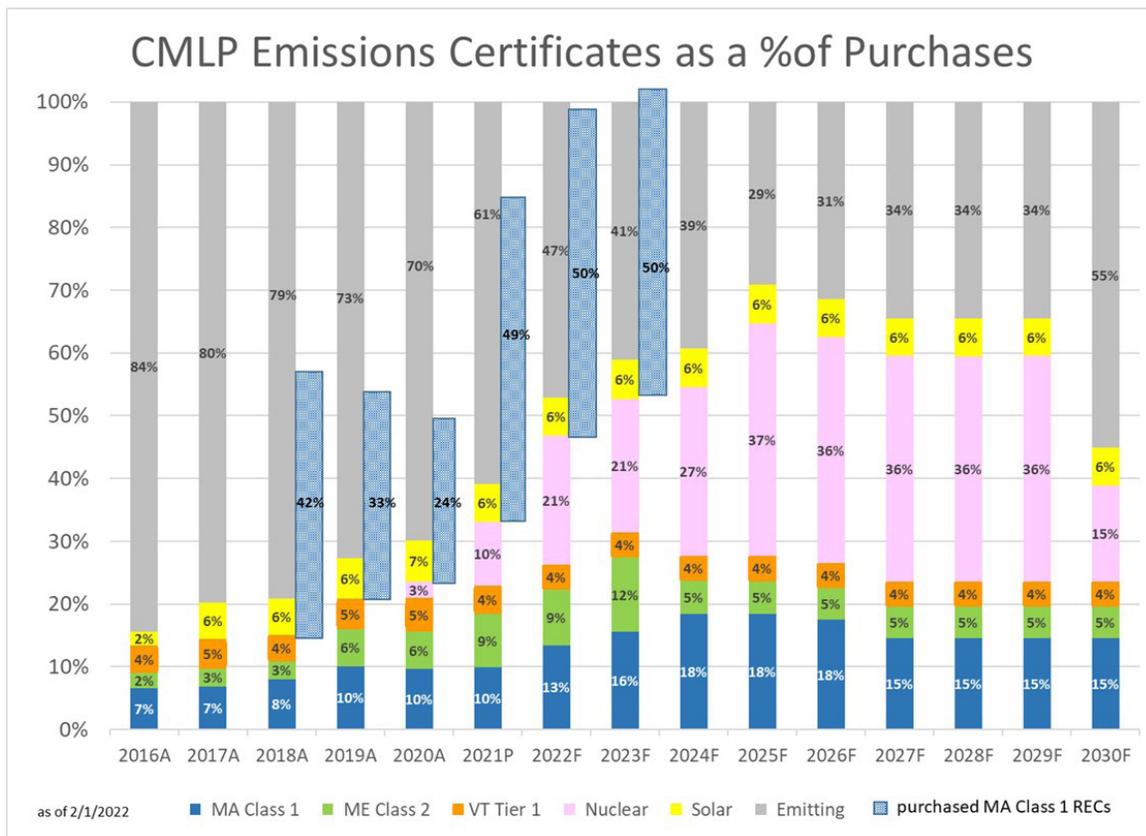
separately. Note, CMLP will not complete the purchase of non-associated 2021 RECs until June 15, 2022. The figure provided for 2021 “Purchased RECs Retired” is only an estimate. The 2018 to 2020 historical Associated RECs Retired values increased from last year due to the inclusion of NYPA hydro power which does qualify for Vermont Tier 1 RECs and is used to offset Concord’s emissions.

Generation Year	Associated RECs Retired	Purchased RECs Retired	Total RECs Retired	% of Sales
2021	56,756	84,623	141,379	84%
2020	39,519	42,475	81,994	51%
2019	35,620	55,703	91,323	56%
2018	26,658	74,256	100,914	58%

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. REC prices increased from less than \$0.01 per kilowatt hour in 2018 to \$0.04 per kilowatt hour today.

supply contracts will increase the total amount of MA Class 1 RECs. The renewable energy surcharge can be increased to broaden the funds available to offset the cost of either non-associated MA Class 1 REC purchases or renewable energy contracts. 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 100% of its purchases with REC prices remaining at current levels.

Despite the increase in REC prices, CMLP is on track to meet its goal of 100% non-emitting electricity by 2030. In 2023 new wind and solar



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. In September, a "Climate Friendly Homes & Vehicles Webinar" attracted 100 Concord residents, who learned about advanced heat pumps, plug-in electric cars, and talked with residents who have already adopted these innovations.

Electric Vehicles

Registry of Motor Vehicles interim 2021 records showed 490 electric vehicles (EVs) garaged in the Town of Concord, an increase of 8% compared to the end of 2020.

A cash rebate is one of the top EV purchase influence factors cited by non-EV drivers who responded to a survey we conducted in July 2020. So, in 2021, CMLP launched the DriveEV Rebate Program, Concord's "rEvolutionary" rebate, which offers rebates ranging from \$350 to \$1,000 upon purchase or lease of a new or pre-owned EV. This range includes higher rebates for Concord families earning less than 80% or 120% of Boston metropolitan area median income.

CMLP's free Electric Vehicle Toll-Free Support Line and Email, which allows Concord residents to ask questions about all things EV, handled over 152 interactions with 116 unique customers in 2021. Forty-three customers received a \$250 Level 2 Charging System rebate in 2021. Over 206 CMLP customers have programmed 216 EVs to charge off-peak since the EV Miles Program began in 2018, qualifying for bill credits.

Heat Pumps

We launched the Concord Clean Comfort Program in February 2021 when our new website, ConcordCleanComfort.org, went live. The program offers our customers a list of well-reviewed air-source heat pump installers, a pre-installation

heat pump sizing review, a post-installation quality assurance check, and our new heating/cooling coaches, who help customers decide if a heat pump is right for them and make the process of switching to heat pumps easier.

The Concord Clean Comfort Program received almost 220 coaching requests in 2021. About 80% of those who requested coaching services followed through and met with a coach, for 173 coaching engagements. Heat pumps were adopted by 18% of those who engaged with a coach.

CMLP rebates supported installations of 59 air source heat pump systems, 1 ground source heat pump and 10 heat pump water heaters in 2021.

Home Energy Assessments

Eighty-two customers received home energy assessments from CMLP in 2021, a 28% increase from 2020.

Residential Energy Efficiency Rebates

20 residential customers received rebates in 2021 for weatherizing their homes. CMLP's rebates and installation services supported the usage of almost 1,300 new LED bulbs in 2021.

Commercial Energy Efficiency Rebates

In 2021, business customers received almost \$17,000 in rebates through CMLP's High Efficiency Lighting Program.

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, through the end of June, 2021, when the program closed to new applications. The MLP Solar Rebate Program provided 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.

Forty-three customers received CMLP's traditional solar rebate and 25 received MLP solar rebates. Throughout the MLP Solar Rebate Program period, which began in late 2018, CMLP received 67

MLP Solar rebate applications, significantly more than any of the other 18 MLPs participating in the program. There are now a total of 420 PV systems on residential and commercial rooftops in Concord with a combined capacity of 4.2 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.

Holiday Gift Giving

Every year, Concord Academy has expressed its gratitude of CMLP with a delicious meal for our employees. In lieu of the meal, we partnered with Concord Academy to make an equivalent gift card donation in CMLP's name to the Town's Holiday gift giving program.

Residential Rate Assistance

CMLP offers a Residential Rate Assistance program to Concord residents in financial need. On this rate, customers can receive a credit of \$0.1000 per kilowatt hour on their first tier of usage. Eligible customers can lower their bills by as much as 50% if they qualify for this rate. Customers must complete an application and be re-certified annually to stay on this program. As of December 2021, there were 174 customers enrolled in the program -- 147 Electric and 27 Water customers.

COVID-19 Assistance

For Concord residents and businesses in financial need during the COVID-19 pandemic, Concord Utilities suspended the collection process and disconnection of all utilities, as well as late payment charges for non-payment during 2020 through July 2021 when started the collections process again. This gave customer a few extra months to catch up on payment their bills or to work with Customer Service to devise payment plans and review assistance packages in conjunction with other Town services.

Concord Municipal Utilities Customer Service

The Concord Municipal Utilities Customer Service team is centrally 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.

Enterprise Software

CMLP partnered with NISC (National Information Solutions Cooperative) to implement enterprise software beginning in May 2019. This was a multi-year implementation including several modules, and the initial implementation was completed in 2021 with the final Work Management modules. The implementation began with the new billing system and SmartHub®, the customer self-service portal.

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

Customers can 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 2021, there were 4,902 customers signed up with SmartHub accounts.

Advanced Metering System Project (AMS)

CMLP is seeking to procure an Advanced Metering System including the purchase of electric meters, water radio units, and network equipment. CMLP first issued Request for Proposal (RFP) #416 in late 2020 to select a consultant to help with crafting the AMS Project RFP with consultants' proposals due in early January 2021. The Evaluation Team reviewed the proposals received and awarded the contract to Lemmerhirt Consulting. Lemmerhirt Consulting began working with CMLP in March 2021.

Lemmerhirt developed the Project Timeline, Benefits Fact Sheet, and System Applications and Goals Summary. In June 2021, CMLP issued an online Customer Survey developed by GreatBlue

Research to help gauge Concord citizens' knowledge and understanding of smart meters. GreatBlue presented their findings to the Light Board in early September, and CMLP held a virtual Stakeholders meeting in late September for citizens to ask questions and share any concerns about a new metering system.

Lemmerhirt and CMLP worked on the RFP section by section and issued the final RFP #440 in late November with the deadline for vendors to submit their proposals by the end of January 2022.

Operations and Engineering

COVID-19 forced the Light Plant to adjust priorities, schedules, workloads and staffing allocations. Our main focus was, and continues to be, providing safe and reliable electric power and broadband service to our customers. This year we had to reprioritize our operational responses and project work to essential tasks only. This was done to protect our employees, rate payers 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 not be sufficient personnel to operate the distribution system or respond to emergencies.

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 2022, 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. CMLP is also looking to begin collecting data and start plans for the conversion of Wright Farm Road in 2022. 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 2022, converting the remaining overhead section to underground.

Main Street Underground Reconductoring

Due to age and condition of the existing underground primary conductors along Main Street, between Walden Street and Old Bedford Road, CMLP replaced the underground conductors. The replacement of the conductors afforded CMLP engineering the opportunity to redesign this section to current industry standards. These upgrades increase the resiliency and reliability of the underground distribution system in the downtown area.

Verizon Pole Inspection, Maintenance and Replacements

Verizon conducted pole inspections on several utility poles that they are responsible for maintaining in Concord. Approximately fifty poles have been scheduled for replacement. As a result, CMLP has started the process of transferring the electric primary wires, electric secondary wires and broadband fiber on each pole.

Substation Equipment Maintenance

Transformer Number 2 at Substation 219 underwent extensive Load Tap Changer maintenance this year. After the work was performed, testing was carried out to insure proper operation.

Tree Trimming

A vital part of our preventive maintenance program is tree trimming. This year, CMLP began to work with Davey Resource Group to update our current

tree trimming protocol. Our current tree trimming specification will be updated with current methodology, regulations and standards. After our specification has been updated, we will begin the process of large scale tree trimming again. Of note, line crews performed tree trimming and removal of branches and trees as necessary throughout the system, to keep our system safe and reliable in 2021.

Substation Metering Upgrade Project

Power quality meter replacement is required at both of CMLP's Substations. Several of the existing meters either provide unreliable information or are not supported by their respective manufacturers any longer. 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. CMLP plans to move forward with this project in 2022.

Emergency Response

CMLP responds to numerous emergencies throughout the year and 2021 was no different. These emergencies included severe storms, motor vehicle crashes, wildlife-caused outages, and several other unforeseen events.



Emergency Response to crash on Lexington Road

Telecommunications

2021 was the seventh full year of operation for the CMLP's Broadband service. Operating today as Concord Broadband, the demand for service has remained steady, and community support and feedback has been excellent. CMLP launched the Broadband service in March 2014 after the 2013 Annual Town Meeting passed Article 48.

Service continues to be in demand with subscriptions growth to 1,564 residential and business accounts between January and December 2021, a net increase of 80 subscribers for the year. Revenues in 2021 exceeded \$1.4 million, with a 4.5% increase over 2020 during the pandemic. Operating costs have consistently lined up with expectations. Since the end of 2016, Concord 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.

Concord Broadband has continued to offer no-nonsense pricing with no hidden fees or unexpected price hikes. Our pricing has remained steady in 2021 with no price increases since 2014. Residential service starts at \$49.95 per month for 35 Mbps while offering a true symmetrical service. Our business offerings provide speeds from 70 Mbps to 400 Mbps with custom service up to 1 Gbps. Information about the offerings is on the Town's web site at www.concordma.gov/broadband. Concord Broadband has a staffed help desk that answers calls and provide technical assistance 24 hours a day, seven days a week.

The Broadband Team is in the process of upgrading our entire core network in 2022 for increased reliability and redundancy, providing a better experience for our customers. We are committed to Net-Neutrality and the privacy of our customers. Concord Broadband does not monitor, collect or maintain any of our customer's information for any marketing or resale purposes.

In 2021, we continued to provide additional "dark fiber" leases to 3rd parties for point-to-point services. These 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.

Concord Broadband looks forward to additional improvements as we continue to provide a straightforward service to community.