Concord Municipal Light Board Minutes
February 9, 2022

Pursuant to a notice duly filed with the Town Clerk, a meeting of the Municipal Light Board was held on Wednesday February 9, 2022, at 7:30 AM, via a Zoom Webinar. Present were Board Members: Wendy Rovelli (Chair), Brian Foulds, Gordon Brockway, Alice Kaufman, and Pamela Hill. Also in attendance were David Wood, CMLP Director; Laura Scott, CMLP Power Supply and Rates; Jason Bulger, Concord CIO; Joe Repoff, CMLP Assistant Director; Karin Farrow, CMLP Sr. Admin; Amanda Kohn, Director of Sustainability; and residents: Charles Parker, Stephen Bader, Dean Banfield, Karlen Reed, Mark Howell, Pamela Dritt, Andy Puchrik, Jim Terry, David Allen, and two call in listeners.

Note definitions for acronyms used in these minutes:

- **AMI**: Advanced metering infrastructure
- **AMS:** Advanced Meter System
- **CMLP**: Concord Municipal Light Plant
- **EV**: Electric Vehicle
- **kWh**: Kilowatt hour
- **MMWEC**: Mass Municipal Wholesale Electric Company
- **MWh**: Megawatt hour
- **REC**: Renewable energy credits
- **RFP**: Request for Proposal
- **PCA**: Purchase Cost Adjustment
- **ROI**: Return on Investment
- **SDA:** Solar Design Associates
- **SMMA**: the architectural firm for the Middle School Project
- **TOU**: Time of Use

CALL TO ORDER
Ms. Rovelli called the meeting to order at 7:30 AM. Meeting recording will be posted to the Minuteman Media Website as soon as it is available.[1]

MEETINGS & MINUTES

Upcoming Meeting Dates: March 9, 2022, April 13,2022, May 11, 2022, June 8, 2022, July 13, 2022, August10, 2022, September 14, 2022, October 12, 2022, November 9, 2022, and December 14, 2022.

There were no minutes ready for review. Video recording of the meetings are available on the Minuteman Media Network.

CHAIRS UPDATE: (Timestamp 6:58)

Ms. Rovelli – In addition to reviewing rate/rate philosophy, it is time to review the goals and progress made on the Strategic Plan and update, (add Middle School Project) as needed.

DIRECTORS UPDATE: presented by Mr. Wood (Timestamp 11:51)

Mr. Wood presented his Directors Report.[2]
In response to his report that CMLP was moving forward with solar at the Middle School Project, Mr. Wood confirmed that CMLP, SDA, SMMA would collaborate. The feasibility design provided the maximum capability for solar on the site; Deciding how much actually gets built is the next step. The town meeting article is looking for net zero for the building. Maximizing the solar capabilities of site is a possibility, but the financial components piece must be balanced. A discussion on the key decisions surrounding this project was deferred until the next meeting.

ENERGY NEW ENGLAND RE-APPOINT CLASS C DIRECTOR (Timestamp 27:03)
CMLP is an equity owner (Class III) in Energy New England and Mr. Wood currently sits on the Board of Directors. Reappointment for the next 3-year term requires a vote of support from the Board.

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[1] https://www.youtube.com/watch?v=WGB9hSA87HQ
[2] Addendum A: Directors Report

Ms. Hill moved to recommend that pursuant to Section 3.2 of the Operating Agreement of the Energy New England, LLC, the Town of Concord Town Manager reappoint David Wood as a Class C Director of the Energy New England, LLC Board of Directors for the term of three years. Ms. Kaufman provided a second and the motion passed with a unanimous roll call vote.

METER REPLACEMENT PROJECT (Timestamp 31:17)

CMLP received 9 Proposals for the meter replacement project, three of which did not meet the mandatory requirements. The review board is currently in the process of ranking the remaining 6 Proposals with the goal of identifying a short list to bring in for presentations. The review board consists of Water Dept. staff, Joe Repoff, Laura Scott, Carol Hilton, Dave Wood, and the AMI consultant. Jason Bulger is reviewing the security and network design portion. Meter staff will review the specifics of the metering. It is a detailed process for deciding which vendor best fits. It is early in the process of assessing which of the requested solutions each vendor is offering.

FIBER BROADBAND COMPLETION TASK FORCE UPDATE (Timestamp 38:37)
Mr. Brockway reported the that the draft report of the committee should be completed at the at the end of this month, be reviewed by the end of March and the final draft be ready at the end of April for a May first target date. There is a portal where the residents can contact the Task Force.
Mr. Wood explained that CMLP is in coordination with public works on their projects and wherever possible coordinating conduit installation with water and drain work prior to a road being paved. Currently there is 6-7 miles of road that have conduit without electric supply and the focus has been on getting those areas converted. When new projects come up it becomes a funding issue.
Mr. Brockway suggested that American Rescue Plan Act (ARPA) was an opportunity to get some funds that could maybe be useful for solving the funding problem.
Ms. Rovelli opined that Mr. Brockway having said there would be three opportunities for CMLP comment on the Task Force Report that as a board, we should all review whatever draft at what point deemed appropriate and provide feedback.
Mr. Howell (Chair of the Task Force) indicated interest in hearing feedback from the Light Board.

RATE DESIGN PHILOSOPHY (Timestamp 57:51)
Ms. Rovelli explained the discussion would be about the current tiered structure. What are our strategies for moving forward in time of use design as an alternative to the tiered structure? Ms. Scott has put a lot of information together just quickly summarizing the current strategy.[3] Previously there has been a discussion on whether we believe that our tiered structure really encouraged conservation or not and that the structure, contrasting with the need to encourage carbon free alternatives to energy which by nature, increased use of electricity. The other topic that was raised in the past, as CMLP moves to time of use rates, is increased costs for lower income rate payers. Rate payers who may be currently paying the lower tier rate may have to pay more, while current ratepayers on the higher tiers may pay less. Mr. Wood opined that the actual effect of the tiered rate on conservation successful hard to measure. The challenge we face today is promoting electrification.

Mr. Foulds commented that said that CMLP does not have the technology to do time of use. The reason to use time of use is because we can take those peak expenses and narrow the timeframe during the day to increase the cost when those expenses are calculated. And the tiers don't do that. Fear of increasing electric bills may prevent people from fuel switching and adopting technologies like EVs and heat pumps. He suggested that going forward, to try to taper off our use of tiered rates until we can eliminate them to a single cost for transmission capacity. And then we'll transition to Time of Use. CMLP is not alone in dealing with rate design issues and determining fair rate schedules that promote electrification while also promoting energy conservation. The pandemic related shift of workers from a physical workspace to working from home effectively limits their ability to use less energy or adopt time of use strategies. Additionally, Ms. Kaufman offered a reminder that it had been a Board decision, based on the Baker-Tilly Study to make the transition to the suggested $75.00 meter fee a slow one.

Mr. Brockway suggested the Board embrace the idea that prices actually do have an effect on behavior, that a

[3] Addendum B: Rate Consideration 4 Topics

tiered rate structure is a fair system, and that larger users should pay more to support the system than smaller users.

Mr. Foulds suggested the light plant should base the customers contribution to fixed charges on that the size of connection, rather than the usage levels, but acknowledged technical barriers to implementing this strategy.

Ms. Scott offered that if it were decided that high users should pay more, that may be reflected within the demand charge, whether it be on a coincident or non-coincident basis. That data will become available with the time of use meters.

Ms. Hill voiced agreement with the other Board members.

Ms. Rovelli noted that as the CMLP transition to Time of Use rates progresses and as decisions are made, the Opt-Out rate structure needs to be finalized. The current analog policy included a $20 Cost to Serve fee to cover the truck roll-out for the manual read.

Ms. Scott requested clarity from the Board on rate structure during the transition and when Time of Use meters were fully deployed. Some members wanted to keep it simple and other members wanted a gradual transition, slowly flattening the tiered rate system (aimed at avoiding rate shock) in a transition to the Time of Use rate. Ms. Scott pointed out that CMLP had a small inventory of smart meters and that before mass deployment that a TOUR pilot program could be run to gather information and test the system.

Mr. Wood opined that there was a need to keep rates as reasonable as possible bearing in mind that Concord has more initiatives than many communities. Those initiatives come with costs.
Ms. Rovelli stated that discussions would continue and as TOUR rate were worked toward it would be important to keep customer impact in mind and suggested that the next discussion be around the demand charge and a residential demand fee.

LIAISON AND PUBLIC COMMENTS (Timestamp 1:48:31)

Mark Howell opined it is a critical time to be looking at Light Plant principles and that policies of the past are not likely to be good guides. The dearth of data is a central problem. Engage in a process that attempts to write down what principles and policies that you're really looking to accomplish and be prepared to revise and revisit. Along with Time of Use and tiered pricing discussions there is also critical period pricing and seasonal pricing. How do you communicate with customers? How to impact their behavior? Critical things to consider and build into the new AMI metering system. Choose a vendor that if they cannot provide everything being asked for that they have a solution that can be extended to be modified and to change as we start to see a more complicated electric grid. Opt-out shouldn’t be treated as an exception it should be the design. The design should be that there are rationalized rate structures, whether they're block rates, tiered, flat rate or time of use. Rates that make sense economically from the light plants perspective, and for the customer. Once time of use data is available that is when to design the rates. A sampling exercise of a few 100 Customers could be very instructive for modeling.

Pamela Dritt opined more discussion was necessary, and there is a need to design rates to incentivize the kind of use we need. If opting out is not more expensive, lots of people will opt out to avoid change. The rate support program should be based on need, not necessarily on low use. Could we make a list of things we might want to incentivize and design a rate system that does that? Can we use and fill the stabilization fund so we can use that to avoid rate shock? Rate shock is a terrible thing which is why we should gradually raise our rates as we go every time. We need to be more expensive than most places because we have 100% green energy here and as we add, we must build the infrastructure to make it completely green energy and mostly locally generated. We need to raise the rates to get the money to build that infrastructure for things like the middle school solar and the industrial battery, and the broadband build out and the electrification of the school bus fleet, which can be a mobile backup battery generator for the whole town. We have or we will have in the future, a local peaker plant, consisting of residential solar arrays with battery backup that we could use to balance the local grid we should reward solar with battery backup investments on the part of people that is investment in Concord power that we don't have to make, and we don't have to buy. The idea that solar installations are being disincentivize financially or limited in any way is so counterproductive for the general climate change. I haven't seen anything about incentivizing battery backup investments. I think in our strategic plan that doesn't include incentivization of solar really needs to be changed. I understand the contradictory, conserve electricity and switch to all electric with heat pump philosophy that's contradictory in rates. But couldn't we solve that by making a different rate for all electric heat pump buildings? Please don't lower the charges during the transition for most people, because then we'll have more rate shock. We're used to paying

what we're getting, and we don't know what our costs are going to be. With the current different time rates for charge point chargers for electric vehicles has there been a change in the general charging use of the charge points. Do we know?

Ms. Scott responded to Ms. Dritt final question that use had changed and that numbers would be presented at a future meeting.

Mr. Banfield provided notice that he was introducing a warrant article at the town meeting to try to get us back on the track with developing local solar. He first read the text of the article[4]. And then went on to say that: In 2010 CMLP had a robust target to build 25 megawatts of solar capacity by 2030. The landfill in 2014 and WR Grace 2017 were a good start. And then in 2017, the same year Article 51 passed article 51, to get aligned with the Mass GHG reduction targets, CMLP changed course and distributed solar was no longer considered strategic and solar deployments stopped. The 2020 Climate Action Plan revived the idea of creating local solar and in there, as a measure of success, was a reduced target of 20 megawatts of local solar by 2030. So, a primary goal of this article is to align CMLP strategy and actions, with the Climate Action Plan. If we are successful in reaching the 20-megawatt target, the added solar would be about 8% of our power portfolio. In the years since Article 51 aligned Concord and Massachusetts climate goals, the state has not stood still and an emphasis on solar will help us support more recent state targets. As an MLP I think we're exempt from most of those laws and regulations. So, we could just continue with our REC purchases. This offloads the actual infrastructure impacts to others elsewhere, and it leads to the question, are we doing our fair share? Now I get it that there are specific challenges we face. The downside of not being as heavily regulated is that we can't participate in many state incentives that the investor-owned utilities can get to create more renewables and that makes the financial analysis a bit more challenging for us. I get it that our distribution network could be destabilized or could suffer blackouts from overproduction, especially during shoulder months of the year. But the benefits seem tangible, both financially and practically. Local generation would help cut CMLPs peak demand from the ISO, especially if married to a storage solution and once flowing, solar electricity will be delivered at a stable long-term cost. I greatly appreciate the work being done to be able to open CMS in 2025 with a functional system. But there are other opportunities in town that could be built without having to wait for a site to be cleared and a building to be built. So, this is another goal of the article to backup and create a plan and a schedule for reaching the 20-megawatt target. It seems clear to me that waiting until 2025, to deploy about 1.2 megawatts, CMS will fall short of our larger objective. The schedule needs to be more aggressive to be successful. We can get our sea legs on a building and or a parking area and it's available now. And when it's time to build CMS, we all have worked out the financial model and the practical details on one or two other projects of similar scale. We all see the news of extreme weather events increasing in frequency and severity. The planet is not waiting for us to build a new middle school. And I don't think we should wait either.

ADJOURN

Mr. Foulds made a motion to adjourn Ms. Kaufman provided the second and with a unanimous roll call vote the meeting was adjourned @ 9:35 AM.

Respectfully submitted, Gordon Brockway, Clerk

[4] Addendum C: Warrant Article 38 Citizen Petition: Development Plan for Municipal Solar Generation

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Addendum A

CMLP Director's Update Material

Energy Management:

- On Monday, January 31, the Department of Public Utilities issued an order in response to the investor-owned utilities' proposed Mass Save 2022-2024 energy efficiency plan. The Mass Save sponsors are in the process of reviewing the order and how it will affect programs moving forward. The sponsors will look to provide an initial update during the week of February 7th. However, for some of the requirements of the order, it may take longer to understand the impact on program offerings. It's not clear at this time how the order will affect the proposed heat pump rebates to Concord households that currently heat with natural gas but switch to heat pumps.

Operations:

- We will be reviewing our COVID operating procedures/protocols on Friday. As you may recall we recently implemented a bit more remote work while still having each division staffed during office hours. With the COVID numbers moving in the right direction we will likely lessen remote work and have more staff in the office. We are currently open to the public from 10am-3pm Monday through Friday and will be reviewing this as well to expand the hours open to the public
- Concord Middle School Solar: Now that the project has approval we will be moving into the next phase of the project. Amanda and I will be setting up a meeting with Solar Design Associates to establish a plan, design as well as a number of other items.

Power Supply:

- Working with Energy New England we have a few different carbon free options that we are looking at:
    - Broadleaf Solar – Granby and East Granby Connecticut
    - Just over 100MW and we are 1 of 18 participants
    - Milan Road Solar – Located in NH
    - Just over 109MW and we are 1 of 18 or 20 participants

Each project will represent ~3% of our needs.

MA EV Grant:

- Late last week we found out that our grant application for a Level III charging station was approved.
- The plan is to install this charging staying in the parking lot at the Ride Out Playground parking lot and relocating the existing level II station
- Since this will be located on public property the grant will fund 100% up to $100k

Broadband Update:

- I am pleased to announce that our candidate for the 4th technician has accepted the job and has a start date of March 7th.
- The technicians have started the installation of fiber on the Mill Run Project which is located next to Riverbend. There will be 14 units there and currently have requests from 6 of the customers.
- The next two big projects are Bartkus Farm and Tanglewood Drive. The team is going to look at Bartkus Farm to see if the handholes are accessible. If they are that will be the next project if not, they will move over to the Tanglewood Drive project.

- Securing additional fiber despite supply chain issues. Ample supply should arrive by next week, which will allow us to more aggressively tackle the backlog.

- Improving the resilience of the equipment that manages customer IP addresses.
- Expanding our GIS application access and mapping capabilities to better capture field data and have it ready and available to the Techs.
- Increasing our bandwidth available to our customers. On January 21, one of our three links was increased to 10GB/second. Now have 2 service providers at the 10-gig level.

Addendum B:

CONCORD MUNICIPAL LIGHT PLANT
ELECTRIC | BROADBAND | ENERGY MANAGEMENT

Date: January 18, 2022

To: David Wood, Light Plant Director

From: Laura Scott, Power Supply and Rates Administrator

Subject: Summary of Proposed 4 Rate Consideration Topics presented at 1/12/22 Light Board Meeting

At the 1/12/22 Light Board meeting, I summarized 4 major areas that I think the Board should be thinking about with respect to rate design. Here is a written summary of those 4 areas:

1. Tiered rates
2. Direct load control
3. Solar net metering
4. Residential demand fee (Upon reflection, I would make this a slightly broader topic called "Fixed vs. Variable Costs.")

I recommend that special Light Board meetings be scheduled over the next 4 months in between regular meetings to cover each one of these topical areas in detail.

Tiered Rates
Should the tiered rates for residential electric customers be eliminated in favor of Time of Use rates?

CMLP currently charges residential customers more per kilowatt hour if their monthly kWh usage exceeds certain thresholds. Residential customers pay $0.16131/kWh for the first 657 kWh of usage per month. If they use more than 657 kWh, they pay $0.17125/kWh for the next 178 kWh. For all monthly usage in excess of 835 kWh, customers pay $0.19031/kWh. The largest residential users, some of whom use more than 30,000 kWh per month, pay a much higher average price than small users. Wealth is transferred from high volume electric users (some of whom are also very affluent) to small volume users of electricity (some of whom are among the least affluent.)

The tiered rates were implemented to promote energy conservation years ago when reducing electricity consumption was deemed desirable in any case. Since then the desire to electrify space heating/cooling and transportation in order to reduce greenhouse gas emissions has called that assumption into question.

Time of Use rates represent a paradigm shift from charging based on how much volume a customer uses to charging based on when they use electricity. If CMLP adopts TOU rates for its residential customers, it will be abandoning the tiered rate structure, and the wealth transfer and energy conservation benefits, if any, along with it. How strong is the correlation between electricicty volume use and wealth? Do tiered rates really promote conservation?

Direct Load Control
Should CMLP direct load control be eliminated in favor of customer managed load control?

CMLP can physically control the water heaters and electric thermal storage heating systems of customers who opt into CMLP's load control programs. In exchange for compensation, the customers allow CMLP to turn off their electric device for certain hours of the day. CMLP turns them off during the hours when transmission and capacity fees are set, thereby reducing CMLP's power supply costs.

CMLP's current load control capability is enabled by the smart meter system CMLP implemented in 2010. When new meters are purchased in 2022, it would be helpful to know whether CMLP will need load control devices. It could affect the solution decision.

Time of Use rates will encourage customers to use less energy during expensive hours. However, if a customer prefers that CMLP manage their load for them rather than worrying about it themselves, should CMLP continue to offer CMLP-managed load control? Should the customer receive only the economic benefit of the lower time of use rates, or should CMLP continue to offer some type of additional incentive (such as a monthly credit) for letting CMLP actually turn their equipment on and off?

Solar Net Metering
How should CMLP bill customers with generation (solar and batteries) under Time of Use rates?

After lengthy and intense stakeholder and Board debate, CMLP adopted its current solar net metering rate. The rate allows customers to subtract the volume of kWh they send to CMLP when their solar panels are producing more than their house is consuming from the volume of kWh that CMLP sends to them when their house requires more electricity than the solar panels are producing on their monthly electric bill up to the total kWh sent by CMLP to the customer. This means CMLP pays the solar customer the retail rate for electricity as long as the customer does not send more kWh to CMLP than CMLP sends to the customer during the month. When the customer net exports kWh to CMLP over the month, they are paid a wholesale rate for the excess.

Because a portion of CMLP's fixed costs are recovered from volumetric sales, solar customers are subsidized by non-solar customers because they are charged for fewer kWh. Pursuant to a 2015 Cost-of-Service Study performed by Energy New England, CMLP began charging solar customers a monthly Net Metering Distribution Fee. It is a fixed fee based upon the size of the customer's solar array that is in addition to the monthly customer charge. Whether the Net Metering Distribution Fee truly counterbalances the cross subsidy is a question that should be studied.

If the current net metering methodology is to be maintained, how will it work with Time of Use rates? Will deliveries and receipts be calculated for each time period of the day? How will excess generation be treated?

Fixed vs. Variable Costs
Which of CMLP's $31.9MM 2022 forecasted costs should be considered fixed? How should they be recovered from rate payers? If all of the fixed costs were recovered in the monthly customer charge, how high would that charge be? Currently only medium and large commercial customers pay a demand fee. Should some of the fixed costs be recovered through a demand fee for residential and small commercial customers?

A demand fee is assessed based upon the customer's maximum hourly usage during the month on either a coincident or non-coincident peak basis. The coincident peak would be the volume the customer uses during the hour of the month when transmission and capacity costs are determined. The non-coincident peak would be the maximum hourly volume the customer uses during the month regardless of when that occurs.

Addendum C:

CITIZEN PETITION: DEVELOPMENT PLAN FOR MUNICIPAL SOLAR GENERATION

ARTICLE 38. To see if the Town will vote to urge the Concord Municipal Light Plant to develop an action plan and schedule for the achievement of the Town's 2030 solar capacity targets focused on development of new power generation on Town-owned properties and present the plan and schedule to both the Select Board and Finance Committee before the end of 2022.

The proposed Article is intended to align the strategic objectives of CMLP and those of the Concord Climate Action Plan ("Sustainable Concord") vis a vis solar energy generation on town owned land and buildings. The Climate Action Plan targets 20MW of solar generation on municipal/school properties by 2030, which will require building an average of 1.5-2MW of solar capacity per year. While the recent CMLP activity regarding CMS is encouraging, the current CMLP strategic plan does not include any specifics for solar development. The petitioners would hope to see at least 1MW of solar capacity developed by the end of 2023. Increasing local power generation can produce technical benefits, as well as ensure that Concord directly shares the burdens of decarbonizing the power we use.