

# Light Commission January 31, 2023 meeting minutes

To: Light Commission: Commissioners  
Light Department: J. Kowalik, General Manager, M. Barrett, Business Manager  
From: Jean-Jacques Yarmoff, Secretary  
Date: February 28, 2023  
Re: Commission Meeting January 31, 2022

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A quorum being present, Light Commission Chair Mike Hull opened the meeting at 4:00 pm, the meeting being held both in person and with remote access available to the public. A recording of the meeting is made available to the public at the following [link](#).

## **Participated in meeting:**

Commissioners: Hull, Frechette, Smith, Wolf and Yarmoff participated in person.  
Light Department: General Manager Joe Kowalik and Business Manager Matt Barrett.  
Invited: Chris Lund, Consultant, Utility Financial Solutions (UFS)

**Approval of minutes** of January 10, 2023 meeting.

**Vote #2023-03** Motion to approve minutes moved by Commissioner Wolf and seconded by Commissioner Yarmoff. Unanimous.

**Vote #2023-04** Motion to amend the Agenda to include a review of 2023 Goals for the GM of the Department and for an update of the Strategy Working Group work. Moved by Commissioner Yarmoff, seconded by Commissioner Smith. Four in favor, Hull opposed.

## **Discussion of selected rates**

The General Manager proposed to review successively: the Residential and Commercial Solar PV credit; a proposed Distribution Demand Charge for Residential and Small Commercial; the MMLD-owned Public Level-2 Chargers rate; a qualified Low-Income Household Residential rate; the proposed retirement of the dedicated meter residential EV charger rate; and Time-of-Use rate for Residential, Small Commercial & Commercial rates.

Commissioners Frechette and Wolf will recuse themselves of voting on solar PV credit rates as they both have solar arrays on their residences.

## **Solar PV Credit**

The current residential solar PV credit for energy injected into the distribution system has been fixed for a long time at 9.99 cent and there is no mechanism to update it, although the PPA has been applied, but not changed on 2022. The current commercial PV credit is based on the prior year real time NEMA data. To ensure financial stability over the long term, rates may have to change.

Rate setting should be - data driven, transparent and based on public data sources and support adoption of energy efficiency and clean energy best practices.

Rate setting should also support overall energy procurement policies of MMLD.

The proposal is to have one rate, whether the customer is residential or commercial. This rate may be adjusted over time as data changes. Data sources used for calculation of the proposed rate include:

- NREL PV data, which provides hourly solar PV production for any place in the US, including Marblehead;
- and - ISO-NE real-time location marginal price (LMP) for NEMA, North East Massachusetts (grid node where Marblehead gets electricity from).

The rates proposed are shown on slide 3 on page 12. The calculation as proposed would lead to a decrease in feed-in tariff for energy which is not directly consumed but is instead fed into the distribution system. The in-depth discussion is reported on page 6 below. The Chief of the Fire Department will be invited to the next meeting to review the situation with regards to regulations for battery installs in Marblehead.

While the General Manager presented the new rates as a recommendation for a vote, a decision was postponed as many questions remain unresolved among which:

- Valuation of transmission and capacity charges avoided;
- Impact of batteries;
- Impact of ToU rates on solar credits policy;
- Appropriate frequency to update the rates; period of reference to set the rates;
- Grandfathering existing installs: Impact on existing solar arrays;
- Incentives on installation – transfer of RECs;
- Fire Department position on residential batteries;
- Comparison of solar credit to cost of energy in other MMLD contracts;
- Appropriate proportion of solar within MMLD energy portfolio;
- Timing of change implementation in view of other changes.

### **Considering a distribution demand charge**

MMLD is trying to decrease its reliance on variable energy revenue (the kWh sold) to cover its fixed costs. Fixed expenses represented some 35% of our expenses in 2022, while base rate paid by customers only represented 3% of revenues. Ideally, these two numbers would be much closer. With the rate restructure that the Light Commission approved (Vote #2022-36) the new ratio will be about 7% in 2023 and 11% in 2024, still in imbalance from the 35% fixed expenses.

Capital investments will grow as the distribution systems need to carry a higher load, which could be two or three times as large as the existing load today. Particularly stressful to the distribution system is when all the extra energy is requested at the same time: the system must be able to provide the highest demand from users. MMLD must upgrade the system in anticipation of this dual evolution: higher energy load and likely higher demand.

A technical measure of demand is the “Load Factor” described on slide 1 page 14. A charge linked to the Load Factor, compensated by a lower energy rate (revenue neutral for MMLD), would allow to better align the revenues MMLD collects to cover its fixed costs. The discussion is reported on page 8.

### **Public EV Charger Rates**

MMLD installed 6 public EV charging stations. The rate of electricity provided was set based on residential electric rate, adding a 10% processing charge, which comes to a total of \$0.20 per kWh. The General Manager proposed to increase the rate to \$0.36 kWh based on a Load Factor analysis. However, the implication of higher rates on public charger when many residents do not have the option of charging privately, the disparity this brings is also a fairness issue that the current proposal does not address. No discussion has taken place with current users of the charging station. Conversations with town officials have not taken place either. The in-depth discussion is presented on page 9.

A decision was postponed as several points remain unanswered of which:

- comparison to practice in neighboring towns;
- off peak / on peak rate setting possibility;
- possibility of start of parking fee from idle time.

### **Low income household rate.**

MMLD has put in place during the Covid pandemic a program “Neighbors Helping Neighbors”. MMLD has established a relationship with the non-profit North Shore Community Action Program (NSCAP) which administers other state programs such as help for heating. NSCAP already serves other households in Marblehead with the federally funded fuel assistance program. In NHN, MMLD works with NSCAP to define eligibility criteria and provides funds to NSCAP to help Marblehead residents. NSCAP then provides benefits check to MMLD to credit beneficiary accounts. NSCAP charges a 10% processing fee. This program had been founded by a \$5,000 contribution from MMLD supplemented by \$3,000 donations from the community. How can we communicate about this program to encourage donations? Residents who want to benefit from this program have to apply every year. Our program has helped 27 households and 52 people. Half of these households live below the federal poverty level, which is \$18,310 for a family of two. It is likely that other residents would be helped with an extension of the program, which we will organize with NSCAP. The question to the board is whether MMLD should fund a successor program and at what level.

Commissioner Yarmoff remarked that this has been discussed several times already (see meetings minutes of August 30, 2022; November 29, 2022; December 15, 2022). The Light Board approved the change of rate structures that has now been implemented with the understanding that this program would be put in place at the same time, as the rate structure changes puts an additional financial strain on some low income residents. We discussed that it would be funded with \$50,000 initially, and that the moneys unused would be rolled-over to continue funding the program in following years. It was mentioned publicly during the meeting of December 15 - when the rate structure changes were presented to the public - that this program was going to be implemented at the same time.

**Vote #2023-05** Motion to fund the Low Income Household program with \$50,000, program to be administered with NSCAP moved by Commissioner Yarmoff, seconded by Commissioner Wolf. **Unanimous.**

### **Retiring EV specific rate**

The current EV rate that we have on the books, 10 cents, was set up 10 years ago. It requires a second meter. There is only one resident enrolled in that rate, who is not using the meter. MMLD proposes to discontinue this rate and notify DPU.

**Vote #2023-06** Motion to discontinue the EV specific rate was moved by Commissioner Wolf, seconded by Commissioner Smith. **Unanimous.**

### **Second meter residential rate**

Some people in residential properties have two meters on their properties. Some of these second meters were used for “commercial applications”.

If a resident has two meters on one property, and one meter has been historically registered as a small commercial but is not used as such, at the resident’s request MMLD will convert the second meter to a residential rate, if the resident agrees to have both meters on one single bill to facilitate customer service. The resident will then only be charged with residential base rate charges which are lower than the small commercial base rate charges.

**Vote #2023-07** Motion “to allow MMLD to combine two meters at residential rates on one bill, possibly changing the status of one meter from small commercial to residential at the request of the resident, following MMLD policies” was moved by Commissioner Hull, seconded by Commissioner Smith. **Three votes in favor, Smith and Yarmoff abstain** as they both have second meters on their properties.

## Time of Use Rates

Engineering issues to implement Time of Use rates. We have components on the system which are not compatible with version 3 of NexGrid software, we need to go to version 4.0. With the configuration of the new server, NexGrid can implement demand charges or time of use charges, with at least two different classes of rates (peak and non-peak) for ToU. Question for discussion: we may want to have two classes or potentially three (off-peak, on-peak, critical peak). Later in the year, we will be able to look in detail at the data. A question is “are we aiming to have rates change at fixed times” or “event dependent”?

Implementation of a Time of Use policy, or experimenting with a Pilot has two components. One is **engineering**, to ensure that the systems allow implementation and appropriate billing. Another is **behavior change**, which means an important and thoughtful communication campaign. There is no point in instituting a Time of Use policy that is not changing behavior. If the question is: “should we encouraging NexGrid to put in place a system that allows three rates (that would include critical rate)” then “Yes, this is be a good idea”. We may first implement a ToU policy with only two rates, but decide a few years down the road that is important to reinforce the message about the critical peak. It would be good to have that option. As we design these rates, we will also have to think about adoption: which design gives the best adoption if it is opt-in?

UFS’ Chris Lund reinforced this comment in stating that utilities that implement Time of Use usually start by having as simple a system as possible: fixed hours throughout the year. In a second step, the utility may then want to add the critical peak and potentially the seasonality into the mix. Setting the duration of the On-peak vs Off-peak is linked to the differential between rates: the period must be long enough to recover the differential in rates. Typically, On-Peak may be for a duration of some 6 hours, and the differential would be 50-100%.

**Financial operations** See Year-end 2022 Operating Statement slide 3 page 16.

We are still waiting for the final OPEB and Pension contribution charges from the town. We have used less than \$100K from the rate stabilization fund. So assuming the charges we are waiting for end up being reasonably in line with our expectations, we will close the year with projected total expenses of \$19,959,000 and adjusted net income of 0, as we are supposed to.

## **Operations update**

**Village 13 update.** See slide 1 page 17. Switchgear and transformers will be delivered to the site of Village 13 substation via the right of way (RoW) from Westshore Drive. The RoW is 8 foot wide. The axles of the delivery flatbeds will be 8’6” and will not move in a straight line. Adjacent to the RoW are some wetlands, and the side of the RoW may not be firm enough to carry the weight of the loaded trucks. We need to upgrade this section of the RoW. The General Manager has contacted 7 engineering firms hoping they respond to an RFP with the expectations that they will be able to:

- survey the work that needs to be done, including the surveying the wetlands affected;
- prepare the bid for the contractors who will do the work;
- review the incoming bids and with MMLD chose the contractors;
- manage the contractors to the completion of the upgrade.

Some replies are already starting to come in. Joe has discussed with the town planner to see if we could get an ECF grant, but the timing will not work for us. The grant would be to ensure that the work done for the utility corridor would still guarantee the use as a footpath and recreational corridor.

The budget for the Village 13 project was updated. At this stage, without the cost of the improvement to the RoW but including the possible engineering contract price, the total budget is now at \$8.8 million.

**Vote #2023-08** Motion to allow the General Manager of MMLD to enter into a contract with an Engineering firm for the upgrade of the Right of Way, not to exceed \$90,000 was moved by Hull, seconded by Yarmoff. **Unanimous.**

### **General Manager proposed committee**

**1. Utility Scale Battery Electric Storage** – MMWEC project underway. We can form a committee, with board member participation, looking at PPA deal structure and terms, siting and safety. Commissioner Yarmoff volunteered to help the General Manager on this subject.

**2. US Inflation Reduction Act.** What grant opportunities exist? The board's view is that this is a core function of the department, and the role of a sustainability manager is to do this work. The position has been approved and budgeted. A job description exists. If board members happen to know about grant opportunities, they will speak up. Should this committee be set up and find an opportunity, who will apply, who will follow up on the grant? This needs to be covered by a position of the department.

Chair Hull leaves the meeting at 7:33 pm, Commissioner Wolf assumes the chair of the meeting.

General Manager expresses surprise that board members might be aware of grant opportunities and have not communicated these opportunities to the Department. Commissioner Wolf mentions that she comes across funding opportunities on a quasi-daily basis as part of her job. Commissioner Yarmoff mentions that he has already reported at a previous board meeting that we had passed a deadline for the IJA on December 16 which he learned by participating in a DOE webinar. This was reported at the December 19 Commission meeting. Another example of a grant opportunity that has been sent to MMLD is a MassCEC administered program designed for Munis that will become available this spring. Looking for grants and acting upon the opportunities is too critical a function to be delegated to a committee of volunteers.

Moving forward, board members will forward opportunities to the General Manager.

The General Manager will post the position of Sustainability Manager that the Department aims to fill.

### **Adjourn**

A motion to adjourn was approved unanimously at 7:35, even though the agenda was not exhausted.

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### **Detailed Discussions on the Agenda topics**

A presentation of the detailed description of the various agenda topics is shown in the following pages.

### **Discussion on PV Solar credit**

**Transmission, Capacity charges.** Q: Other Munis use the LMP system as well as other approaches. Does this calculation take into account the avoided distribution and capacity charges? Answer from UFS: we usually take into account this effect only for dispatchable systems, where solar is paired with a storage system, but here these calculations do not take into account this point. We will take this into account when looking at ToU rates. Transmission charges are calculated monthly, based on the peak transmission during a one hour interval in that month. Over time, the peaks have moved later in the afternoon, at hours when solar production is lower, and the transmission benefit that might have existed 10 years ago does not exist today. With storage, it would be useful to target the feed-in at “on peak hours”. Capacity charges are calculated similarly but yearly, instead of monthly.

The current proposal does not take into account any avoided capacity or transmission charges.

**Batteries/storage.** Q: The possibility to use storage systems would alleviate some of these issues. What is the current situation? A: The Chief of the Fire Department has talked with the MA Fire Marshall: the regulations which are in place have to be followed for the installation of batteries, and while there may be some specific considerations with regards to safety, there can be no blanket ban to installing batteries in Marblehead.

AS: It would be useful to have this clearly explained in one single policy document that explains in detail what is allowed in Marblehead, as we are still currently under the impression that batteries cannot be installed in town.

JK: The proposed rate system has been designed with the understanding that people would have access to storage systems.

**Policy goals.** Q: What are we trying to accomplish with this rate?

A1: We are trying to get economically viable rates preparing for the future.

A2: Another policy goal that we have to consider is: “Do we want to encourage solar in Marblehead”, a question that we should be able to answer in a clear Yes/No fashion. Encouraging solar in town will help us towards meeting the non-emitting legal goal that we have that comes with a compliance fine.

Q: There is a concern that the signal sent to rate payers with this proposal is a dis-incentive to installing solar. Several residents present during the meeting mentioned that they strongly feel this way. The residents who already have installed solar play a role of advocate in the community. This proposed policy would go against the idea of encouraging more solar in town. A: This is why we have this discussion.

JK: IOUs and DPU have set rates which are not economically viable and we want to be careful and not have the same issues. AS: This is in a situation where there is full real net-metering, but we are 7 cents short of that in Marblehead. This concern really does not apply in Marblehead.

**Comparison to other energy sources. Place of solar in MMLD’s energy portfolio?**

Q: The levelized cost of energy that was predicted for the Ludlow solar array of which MMLD owns 10% is 0.0875, which is higher than the proposed feed-in tariff to residents, when this electricity is produced in town. How does the energy produced in town compare to other contracts that we have or may have in the future?

Q. We need to answer the question of what we are trying to accomplish in terms of solar in Marblehead. We have a gap of non-emitting energy we need to procure. Can solar in town be part of the solution and to which extent? A. Part of the motivation for aligning commercial PV credit rate and residential PV credit rate is that if a larger array is installed privately and produces more electricity than the resident or business can use, there should be appropriate compensation, in a similar and fair way for all.

**Grandfathering** JK: We understand that customers have put solar arrays based on an economic calculation, but is MMLD responsible to maintain this economic calculation whatever the environment

may be? The customers are keeping the full retail value of all the electricity they produce and consume behind the meter. This new rate only applies to excess electricity fed back into the distribution system.

A: The question remains whether the residents that invested with the expectation of a fixed specific rate for feed-in should be grandfathered in, in some way. As the rates have not changed for a long time, it was a reasonable expectation that they should remain constant, even though the details of MMLD's supply contracts clearly state that rates are subject to change. This last point may not have been highlighted when residents sought a solar connection permit.

Several residents who participated in the meeting mentioned that of course, they would benefit from a grandfathered rate, but that besides their particular situation they felt it was a question of fairness.

UFS agreed that it is not uncommon, upon such a change of policy, to introduce a grandfathering clause which may last several years.

**Timing of new rates. Impact of ToU.** We are considering lowering the feed-in tariff now, changing the rates every year and again when we introduce ToU rates. This is complicated and this variability and unpredictability is not facilitating the life of residents interested in installing solar.

Q: While we understand the economic argument for eventually transitioning to new rates, what is the argument for doing it now?

Q: We hear that we are going to be allowing batteries and transitioning to ToU, why do we have to implement the new rates now?

The timing of the proposed lowering of the feed-in tariff comes at a time when the electricity price has increased significantly because of gas prices. It is difficult to justify on economic grounds lowering the feed-in tariff when the price of fossil-fuel-generated electricity is so high.

There is no question that we can design different systems, and we will have to as we are about to implement ToU and approve batteries. To avoid complicating the issues for residents, it may make more sense to implement new solar feed-in tariffs rates once the impact of these other changes is understood and explained to residents.

**Frequency of update.** Frequency of update on the rate is proposed to be annual.

An alternative could be a true monthly-following value. MMLD could pay these with one month lag. If we could streamline this process we could have a nearly real time benefit. We need to consider MMLDs ability to do this vs the benefit of such an approach, however.

**Incentives.** AS: Another issue that we need to address is the possibility of introducing incentives. Other MLPs that have gone to a LMP-based rate also have introduced incentives: this has the merit of making the financial equation palatable and very clear for the resident. It dissociates a clear economic incentive from the economic benefits from uncertain rates, and the rate decisions can then be made closely on economic criteria. This is a way of solving the two main policy objectives. The MLPs that have implemented incentives keep the right to adjust their incentive policy.

This can come with additional benefits to the Light department, linked to solar RECs. An upfront financial incentive can be the counterpart for future RECs that the installing party may transfer to MMLD. This would simplify the process for residents, and would have both clear economic, as well as compliance value to the department. This was the practice under the MMWEC/DOER program that has expired but that individual MLPs have continued to implement because of its benefits.

We should review the possibility to introduce such incentives at the same time as we approve a new feed-in tariff policy.

### **Distribution demand charge discussion**

We need to be mindful of the capital investments MMLD needs to make to maintain the distribution system. A demand charge is a different category of charges designed to recover the capital costs that MMLD incurs to grow and maintain the capacity of our electric distribution system. We need to update our capital plan going forward, but the level of our fixed costs are not coming down. See slides page 13. One of the issues we need to address is that we expect some of the residents and small commercial rate payers to have their energy consumption be high during short time intervals. (We can measure energy consumption at 15 mn intervals). This use of energy over a concentrated time period, this high demand, puts strains on the distribution system that MMLD builds and maintain.

Changes that are underway will have MMLD supply two or three times as much energy to the town as we used to. If in addition to consuming more energy during the day, the timing of use is concentrated, if the “demand” goes up, that will bring a lot of issues. There could be spikes in uses of energy, and we need to discourage these spikes. Ideally, the demand would be smoothed out. Time of Use rates, with lower rates at a time of low demand are one type of incentive.

A charge tied to the demand is another one. By tying the charge directly to peak demand, this charge would generate revenues that are in line with the capital requirements to update the system to meet the demand, which is the reason why this is proposed for consideration. This can be done in a revenue neutral manner for MMLD and for the average customer (an introduced demand charge would be compensated by a lower energy rate). There are customers who have very low demand, no peak. We are trying to be fair within a class of customers and make sure that customers are charged appropriately for the “asks” they put on the system: one “ask” is energy, another one is demand. A user which both uses a high amount of energy and has a low demand will save on their bill. The goal is to fairly recoup costs among various customers within the same rate class.

A technical measure of the demand, the Load Factor is shown on slide 1 page 14. The higher the demand at a given time, compared to overall energy use, the lower the Load Factor.

With changes expected, it is possible that strain on the grid is going to increase, that load factors are going to go down. Where we have a lot of DERs and flexible loads (PV, batteries, heat pumps, EVs) we need to make sure the incentives are in place that encourage residents to use them in a way that does not increase stress on the distribution system. Currently, they are not. While a residential customer currently has a demand in the 1 – 10 kW range and a small commercial may have a demand of 10-30 kW, new loads can represent about 7.2 kW for a level 2 charger or between 60 and 350 kW for a level 3 charger. If the demands add up on top of each other, that means the Light department must upgrade the systems. If the residents can stagger the demand, then such an upgrade may not be necessary.

The notion of demand is not well understood by residents now, but it is very important for MMLD and we need to educate our customers. It is important that customers understand this issue. As an example, the first customer on a given circuit that installs a level 2 EV charger introduces will probably not cause any problem on the local distribution transformer. This is probably the same for the second or third. But there is a level, may be the 4<sup>th</sup> or 5<sup>th</sup> customer when the transformer will not be sized adequately. The local transformer on top of the pole needs to be upgraded.

JY: Depending on how they are structured, demand charges can be a disincentive to the electrification that we are trying to encourage. The extreme cases where very strong demand is putting a strain on the distribution system, for example because a resident installs a level 3 charger, makes the case for a demand charge obvious. But in the same way, a “normal usage” case should not trigger additional charges. The



question is what is “normal”, in other words when do we start to charge somebody for the extra demand that they are creating. A normal use should be a house that is being heated with a heat pump, where the EV is charging at night (certainly not at peak times). Residents who have electrified their houses and are trying to do the right thing and use electricity when general demand is low should not get penalized with an additional charge. From a policy perspective, we want to encourage electrification, but at the same time, spread the demand. We should be careful in how the demand charge would be structured to avoid these issues.

LW: Are there any studies that show that demand charge help shift demand? UFS: I am not aware of any studies.

SF: We have the Connected Homes program to help control devices. If you have a level 2 charger, must you join the program?

Q: How much control does one customer or the utility have over the charging pattern? The Smart chargers that MMLD provides can modulate the charging pattern. Can they be used to avoid or lower a demand charge? A: Currently, they can go from Level 2 (standard) to level 1 during peak load periods. Whether a resident can modulate at a different time should be technically possible but whether it can be done in practice needs to be checked.

LW: Where are current customers located that have EV level 2 chargers? JK: They do not have to register and we do not know currently. But we can potentially analyze the data pattern. At this stage, the issue is getting the data in our system; this is the discussion the Nexgrid system.

### **Public EV Charging rate discussion**

Three sites in town have been equipped with public EV chargers (MMLD at Commercial street, Mary Alley parking lot and Round House road) since May of 2021; we now have data on 2500 charging sessions. The load factor is 3% range. To be strictly economical, one would fix the rates at \$1.00 based on utilization. Based on residential EV charging LF, we are proposing to target a load factor of 20%, which would set the rate at \$0.36, and we propose to apply that at all three sites, without differentiation (even though the three sites are not equal, Round House site has more users).

Q: Is it possible to keep charging longer than 4 hours without a parking fee? Some cars need to be able to be there longer, and it may be possible to have the charger send a signal to the owner when the charge is done. UFS Chris Lund: If ChargePoint can assess charging fee after Idle time (time when the car is done charging, and just sitting in the charging parking lot). It is something we can look at with ChargePoint to see if the interface rules allow us to set these parameters.

Q: Do we know anything about the residents that use the public chargers? A: We tried, but we don't.

JJY: There are some residents of Marblehead who do not have an option to charge at home. Because they have no dedicated parking spot or because they live in a condo association. We do not have in Marblehead a “right to charge” rule that other municipalities have, and some condo associations have refused to put in a level 2 charger. There is a need for a town wide conversation on public electric charging, where spots might be located, and fairness for these residents.

LW: This rate is designed for to address the Load Factor issue, but is not looking at time of charging during the day. We want to encourage off peak charging. Can we have peak / off peak charging rates?

Q: What data do we have on the current use? A UFS Chris Lund: We analyzed the 2500 charging sessions across the public chargers. Each port provided 160 kWh per month. The cost of service at that usage rate would be \$1.00 per kWh. If the ports were used 100% of the time, based on a load factor analysis the appropriate \$/kWh would be \$0.27, still higher than the current rate. We are trying to find a happy medium between where we are and where we should be, to not discourage usage, but also be economical. 25% Load Factor is a target, which comes from residential charger utilization. We set this as a target by analogy with the residential charger load factor.

On average, a session represents 14 kWh, for a total of 35,000 kWh sold, each session is an average of \$4.50. \$11,200 over the course of all of the sessions.

AS: Given the amount of money we are talking about, we could say like Brookline: “all EV charging stations in town are free”. A: Some municipalities do offer free charging, but setting an artificially low rate can put a utility at risk over the long term. We are trying to catch it early on, when the adoption is still low, to set the right expectations to set the right pricing signals. So that the rates are fair to all the ratepayers.

JK: There are quite a few residents who do not have the ability to charge at home. The town needs to have a discussion on how to address their needs. Round House road maybe one of the best place to create more EV charging in town. The transformer has been sized to be able to increase to 10 charging spaces (rather than the current 4). We built the station expecting growth there. We would like to fix the rates so that this growth is economical.

JY: I am concerned by the disparity we are introducing for the residents who are forced to charge on public charging, because they live in an apartment, a condo or in old town and do not have off the street parking, compared to people who are able to afford a house with off street parking, and will have access to cheaper residential rates. We would be making it more expensive to live in Marblehead. This is an issue that the Light Department cannot solve by itself, but we need to have a conversation with the town on this point. We need to get this right, not for the current 100 EVs we have in town where public charging is an exception, but for the thousands of people who will not have access to residential charging. This is a bigger conversation than the rate for 6 chargers.

LW: Charging for parking when the charger is idle, when the car has finished charging, is more appropriate than a straight parking charge 4h after the start of the session. PHEV are going to be sitting longer, they charge at a lower rate. We do not want to discourage PHEV to stay the appropriate time to charge. So the charging may need to be longer than 4 hours. We should also introduce off-peak / on-peak rates if this is possible. A: These are questions that we can ask from Charge Point.

AS: I wish we could talk to the people who are going to suddenly have to pay twice as much.

SF: Another question is when the time of parking finishes. If somebody charges and the charging ends at 10 pm or midnight, should they really have to move their car at that time to avoid the parking charge? And we are not likely to need the charging space at midnight for another vehicle: it may not be appropriate to charge parking then. A: Experience of a town in Michigan, where there was no parking fee at night. It became a problem when cars came and started to park overnight, first come first serve and it became an unofficial “reserved parking space”. In the end very few people were able to use the spaces. While this is not a problem in Marblehead yet, one should be aware of the possibility. There is a balance to be found.

Q: ChargePoint recommended the 4 hours from their experience. This might make sense in a public garage type of setting, but less so in Marblehead?

When the perimeter of MMLD is secured, will the public chargers still be available? They will be during the day, while MMLD is open, but not after hours: until 5 pm Monday thru Friday. We need an update from CZM to see how the space is going to be organized: can public chargers be installed outside of the perimeters where fishermen come and park during the day.

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### Documents shown during meeting



#### Agenda

1. Approve Minutes of January 10<sup>th</sup> meeting
2. Discussion & vote on selected rates & credits
3. 2022 Operating Results
4. Village 13 update
5. Nexgrid ecoOne (metering system) update
6. Utility-scale Battery Update – MMWEC Joint Action
7. ISO-NE winter reliability- rolling blackout plans
8. Distribution Manager Hiring update
9. Committee reports



#### Selected Rate & Credit reviews

- Residential & Commercial - Solar PV credit      Discussion & Vote
- Distribution Demand Charge - Residential and Small Commercial    D
- MMLD-owned Public Level-2 Chargers      D&V
- Qualified Low-Income Household Residential credit or rate    D
- Second-meter Residential rate    D&V
- (retire existing) Dedicated meter Residential EV charger rate –    D&V
- Time-of-use rate for Residential, Small Commercial & Commercial - D



## Rate-setting policy considerations

- Data driven, based on the actual costs of delivering electric service
- Transparent, use available public/objective data sources
- Leverage the expertise and broad US and international perspective of UFS
- Align rates in support and adoption of energy efficiency and clean energy best practices



## Solar PV rate – Residential & Commercial

- Based on published sources
  - NREL PV data – hourly solar PV production profiles for Marblehead
  - ISO-NE Real-time Localized Marginal Price (LMP) for NEMA (node where Marblehead is located)
  - Same rate for residential and commercial owners



## Proposed Solar PV rates

	Current Rate/kwh	PPA	TOTAL Credit /kwh	2023 Proposal Rate/kwh	PPA	TOTAL Credit /kwh
Residential	.099	.025	.124	.0785	NA	.0785
Commercial	.08438	.025	.10938	.0785	NA	.0785

### Rate Notes:

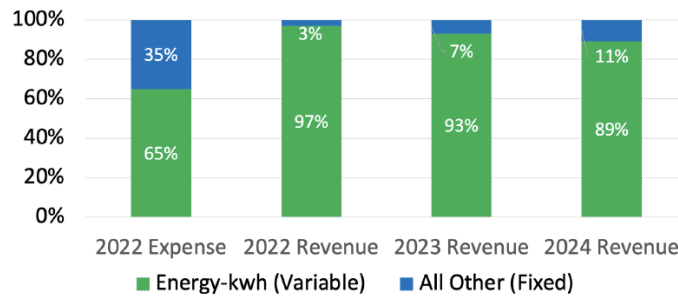
- Based on annual prior year averages
- Rate to be updated annually
- No need to apply PPA, built into hourly rate calcs.



## Why a Distribution Demand Charge?

- It's another method to move away from our high reliance on variable energy revenue (kwh) to recover our fixed costs

Comparing Fixed vs Variable Revenue & Expenses



## Why a Distribution Demand (kw) Charge?

- To recover the capital costs needed to grow and maintain the capacity of MMLD's electric distribution system
- Ensure equity across customers within each rate class
  - Anticipate higher kw demand with lower load factors from level 2 and 3 EV residential and commercial chargers
  - Continued demand with lower load factors at solar PV accounts
  - Customer financial incentive to co-operatively manage solar PV, battery storage, EV charging and heat pumps with MMLD



## Historic and New KW Demand Ranges

Customer Category	KW Demand Range
Residential	1-10 KW
Small Commercial	10-30 KW
Large Commercial/Ind.	30+ KW
New Electrification Measures	
Level 2 EV Charger	7.2 KW
Level 3 EV Charger	60-350 KW



## Load Factor

Load Factor =  $\frac{\text{Energy usage (monthly kwh/hours in a month)}}{\text{Highest momentary peak (15 minute) load (kw) in a month}}$

- Average MMLD residential customer uses 662 kwh/mo
- Average month 30 days x 24 hours = 720 hours month
- Compare impacts of peak loads of 3 kw, then 10 kw
- $LF = (662/720)/3$                        $LF = (662/720)/10$   
       = 31%                                      = 9%



## Increased kw Demand Requires Increased Distribution System Capacity

- Village 13 upgrade – 50% increase in capacity. \$8.8 million cost
- 22 circuits, ~1,000 transformers,
- Primary conductor wire – provides distribution throughout town
- Secondary conductor – distributes electricity from a transformer to a customer’s home
- Supply Chain Problems Exist Today - Transformers (“cans on poles”), are built to order not inventoried. Lead times is now a major problem. 4-6 weeks lead times are now 1-2 years.
- Major supplier GE is not accepting quotes in 2023, building for 2024 delivery.



## MMLD owned Public EV Chargers

ChargePoint Rate for Utility Owned 7.3 kW, level 2 electric vehicle charger

Monthly kWh	LF	\$ per kWh
160	3%	1.00
533	10%	0.47
799	15%	0.40
1,066	20%	0.36
1,599	30%	0.32
2,132	40%	0.30
2,665	50%	0.29
3,197	60%	0.28
3,730	70%	0.28
4,263	80%	0.27
4,796	90%	0.27
5,329	100%	0.27
Target LF->	20%	0.36

### Rate

- Project current 3% Load Factor to a future target LF of 20%
- \$.036 per kwh all hours, on all three sites
- After 4 hours add \$5.00 parking



## Low Income Household Rate

- Leverage existing Neighbors Helping Neighbors program and relationship with North Shore Community Action Programs (NSCAP)
- Provide funds to NSCAP for a 10% processing fee
- NSCAP defines eligibility criteria, with our input:
  - Household income, family size, household structure, public housing, hhd member ages
- NSCAP allocates funds, provides benefits check to MMLD to credit beneficiary accounts

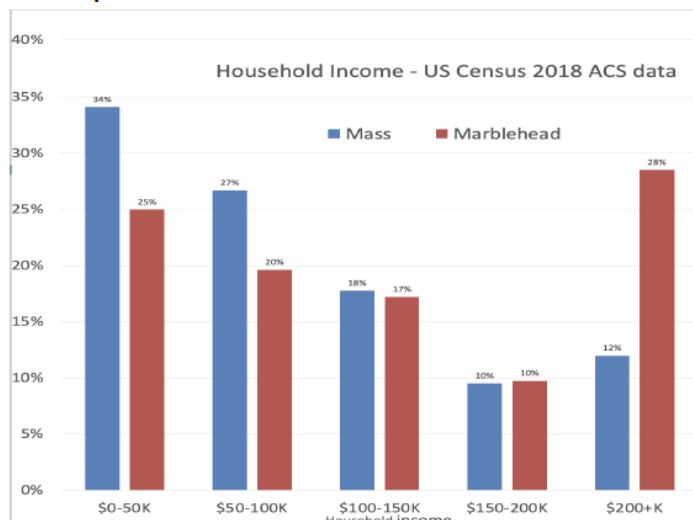


## Neighbors Helping Neighbors Results

- MMLP Fund \$5000 from the MMLD
- \$3092 raised through donations
- NSCAP used \$500 for admin
- We have paid out \$7483.88 in benefits, leaving \$45.12.
- We helped 27 households/52 people. Half of those households live below the federal poverty level.
- Fuel Assistance for FY22 (ending September 2022)
- NSCAP served 506 households/10263 people.



## Unique Household Income Distribution









## Village 13 update – Jan 2023

- Virginia Transformer’s internal bid review is now complete
- Contract negotiations with Virginia Transformer are underway
- Switchgear vendor MCP – all three factories are currently a cyberattack target- computer-controlled mfg operations have stopped
- Request Board vote on contract for Salem ROW improvements engineering design, not to exceed \$90,000.



## Village 13 Upgrade - Budget review

Cost Category	July 2022 Cost \$	Dec 2022 Cost \$	Jan 2023 Cost \$	Vendor	Status	Bid
Manufacture New Switchgear	\$4,347,292	\$4,347,292		Myer CP	mostly firm bid	2022
Manufacturer New Transformers (2)	\$1,700,000	\$2,632,446		TBD	Estimate	2022
Site Construction Contract	\$1,000,000	\$1,000,000		TBD	Estimate	2023
Testing and Commissioning	\$90,000	\$90,000		UPG	Estimate	2023
Engineering/Site Investigation	\$275,000	\$275,000		PLM	Estimate	
Contingency	\$125,000	\$125,000			Estimate	
Make Ready ROW access - design	\$50,000	\$50,000	\$90,000	?	Estimate	2022
Make Ready ROW access - construction						
Make Ready Tioga Way storage area	\$250,000	\$250,000		?	Estimate	2022
<b>subtotal</b>	<b>\$7,837,292</b>	<b>\$8,769,738</b>				
Utility Scale battery	\$0			?	Execute a \$0 payment shared savings option, not purchase	2024-25
Upgrade Clifton substation					Specifications tbd	2025
Spec & Install substation-level SCADA				?	Justification tbd	2025
<b>subtotal</b>	<b>\$0</b>					
<b>Total:</b>	<b>\$7,837,292</b>					



## Board & public participation on GM committees

- Utility-Scale Battery Electric Storage- MMWEC Joint action
  - PPA deal structure, deal terms, siting & safety, China sourcing considerations
- US Inflation Reduction Act- Implications and Opportunities for MMLD
  - What grant opportunities exist? Timetables and deadlines