

# Light Commission November 21, 2023 meeting minutes

To: Light Commission: Commissioners  
Light Department: J. Kowalik, General Manager  
From: Jean-Jacques Yarmoff, Secretary  
Date: December 14, 2023  
Re: Commission Meeting November 21, 2023: Public Session

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A quorum being present, Chair Wolf brought the meeting to order at 4:02 pm. The meeting was held in person and with remote internet access, both available to public participation. A recording of the meeting is made available to the public at the [following link](#).

## **Participated in meeting:**

Commissioners: Commissioners Frechette, Hull, Smith and Wolf participated in person. Commissioner Yarmoff was excused.

Light Department: General Manager, J. Kowalik; Financial Manager, Matt Barrett; Distribution Manager, Greg Chane; Manager of Technical Operations, C. Coleman

Invited: Utility Financial Solutions (UFS): Chris Lund;  
Massachusetts Municipal Wholesale Electric Company (MMWEC):  
Justin Connell, Director Energy Markets;  
Zoe Eckert, Sustainable Energy Policy & Program Senior Manager.

**Remembrance:** The remembrance of a devoted and beloved public servant, Karl Johnson, was led by Commissioner Hull.

Marblehead Land Acknowledgment declaration was read by Commissioner Frechette.

## **Approval of minutes from previous meetings**

**Vote #2023-44** Motion to approve the minutes of the 9/05 Commission public meeting was moved by Commissioner Frechette, seconded by Commissioner Smith. Commissioner Hull, absent on 9/5, abstained. Three votes in favor.

**Comments from the Public** No public comments or questions were made or asked, either by the public present at the meeting or participating remotely.

## **Outstanding items**

**Critical peak cost/benefit analysis** and strategic plan for maximizing avoided capacity costs: General Manager acknowledged this will be a key responsibility for new energy manager.

**Safety protocols** - Wilkins Plant: discussion postponed.

## **Status of recruiting firm hiring to assist MMLD**

General Manager Kowalik exchanged with the firm Stanton Chase, got a proposal, and is discussing some terms of the proposal: this is moving forward. The proposal would cover recruiting for the three identified positions, discussions are around carve-outs for candidates we might be bringing to their

process and there seems to be agreement on how to move forward. Job descriptions drafting is on-going, process should start in December. The board will look forward to an update at the next meeting.

### **Rate Restructure**

Two years ago we contracted with UFS to conduct a review of the rates in Marblehead. This review highlighted an imbalance: the fixed costs that MMLD pays represent 35% of its expenses, while the fixed revenues from the base rate represented only 3% of revenues, a very small fraction. See slides on page 9. The Commission voted in 2022 for and MMLD implemented a changed rate structure in 2023 and as agreed with the previous vote, MMLD proposes to continue the adjustment at the beginning of 2024 following the recommendation of UFS for the base rates and for the energy rates changes. As a result of these changes, the fixed revenues will represent 11% of total revenues.

The evolution of the Residential Energy rates since January 2023 is shown in the slide page 10, with – the rate restructure energy changes, as well as – the changes in the procurement cost of energy (which translates for Marblehead residents in a PPA charge). With mild weather, the PPA has dropped over the course of the year. With the proposed second phase of the rate restructure, the energy rates will go down again, to \$0.1895 / kWh. The differential impact on customers is shown, depending on whether customers are an Average, a Light Use or a Heavy Use customer. The General Manager proposes to start 2024 with PPA set at 0. Depending on the evolution of purchased and planned energy prices and volumes, the PPA may be adjusted accordingly to ensure the match between expenses and revenues. The energy rates have to be filed with DPU; the PPA variations caused by price of energy are not filed.

With these changes, the projected 2024 revenues for MMLD will be around \$21.26 M. Projected expenses depend on energy forecasts and will be finalized when MMLD receives a new forecast from MMWEC.

Commissioner Hull asked whether MMLD could clarify its policy with regards to Dual meters. The General Manager mentioned that there are a number of customers with two meters on their property, and proposes, at the time these new rates are filed, to reach out to customers to propose a “Second Meter Credit/Discount”. This will require some manual handling at MMLD, but the General Manager recommends this is an equitable way forward. Note that if the second meter corresponds to running a home business, it would not qualify for a discount.

Communication and implementation will include a notice in the December bill statements, a notice in the local newspapers, and filing with DPU. There is no plan to hold a public meeting about this subject.

**Vote #2023-45**                      Motion to ratify the rate changes by January 2024 as previously discussed was moved by Commissioner Frechette, seconded by Commissioner Smith. **Unanimous**

### **Finance Manager Update**

The September Year-to-Date financials show a surplus of around \$2M. As the financial results of the last months of the year are typically negative and the PPA set to 0, the overall surplus at end of 2024 is expected to be around \$1M. The main variances leading to this surplus are: - Power Costs, where a \$2.2M difference between actuals and forecasts is observed, and – Unfilled positions, leading to lower payrolls actuals compared to forecast. Interest income, with rising rates, also shows a substantial positive variance over budget.

The draft 2024 Operating budget is introduced with expenses for the year of \$21.3 M (slide on page 12).

### **Time of Use, Demand Charges rates discussion**

*[Post meeting note: The following paragraphs memorialize the subjects that the Light Commission discussed during the meeting. They have been re-organized to facilitate understanding of the conversation. Headings have been added for clarity, they were not part of the discussion. Readers interested in the actual discussions are invited to refer to the video from recording time 0h52 to 1h41, to listen to the actual interventions of participants in the meeting.]*

MMWEC's Justin Connell and Zoe Eckert participated in this discussion, as MMWEC is actively studying Time of Use charges: ToU intersects with several programs of MMWEC and many municipalities are interested and evaluating. As such MMWEC is very interested in the Marblehead Light Commission discussions.

**Technical capability.** The introduction of Time of Use or Demand charges depends on the ability of MMLD to reliably gather the appropriate, frequent metering data. A technical meeting to review Nexgrid's system capabilities and business aspects will be scheduled. To protect confidentiality, this meeting will take place in an Executive Session. It is proposed that this meeting take place December 12.

**Digital vs Analog meters.** Collecting data more than once a month means meters with the capability of digital communication. However, there are still about 30 old analog meters in town. Our digital meters have wireless communication system embedded. Some residents have not accepted the newer meters. The analog meters represent an operating burden on the Department, and prevent implementation of the rate changes contemplated. **Technology considerations.** At the time when these meters were introduced Wi-Fi and cell phone, which are now ubiquitous, were much less prevalent. *Electromagnetic fields created by the meters are minimal:* The meters use the ZigBee protocol, which operates on a similar frequency (2.4 GHz) but is much weaker than home Wi-Fi systems and broadcasts over a narrow range. The electromagnetic field created by the meters is also much smaller than that of a microwave oven or a cell phone (data not shown). *Other sources of electromagnetic fields:* MMLD is operating a network and collecting data from 10,291 meters and communication nodes creating a town wide MESH network (see page 13): anybody living in the town is exposed to this electromagnetic field (which is very low). Whether a resident has a digital meter or not, any town resident (and residents of almost every place in Massachusetts and the country) is exposed to ambient ubiquitous electromagnetic fields, from diverse sources, an important one being cell phone towers. The electromagnetic field generated by meters, which is much lower, is at a level where there is no cause for concern. **Regulatory Authority** with regards to electromagnetic waves does not rest with the Town, or with the Commonwealth, but is a federal competency, the responsibility of which lays with the FCC.

The Light Commission is unanimously in favor of the Light Department's proposed policy to retire all analogue meters pending:

- the creation of a communication document explaining the situation to residents (including possible mitigation strategies for concerned residents), and
- a legal review of the Department's authority to do so. It is anticipated that this policy will be put in place at the beginning of 2024.

**Distribution Demand Charges (DDC).** According to UFS' Chris Lund, a DDC represents an "equitable way to increase the proportion of fixed revenue" based on a relatively fixed monthly peak power usage.

MMLD rate for Large Commercial customers currently includes a Distribution Demand Charge, set at \$6.00/kW, determined by the peak power consumption in a 15 minute interval. Large Commercial customers' meters store this information locally, in the meter. Residential meters do not have that capability. Rather, the meter transmits the information on consumption regularly, every 15 minutes, and storing and interpretation of the data is done centrally. We have been testing the software to make sure that we can capture consumption accurately at every point in time and have the capability for residential Distribution Demand or Time of Use Charge.

There are many ways to structure a Distribution Demand Charge. MMLD does not want to discourage strategic electrification by residents. A Demand Charge should be seen as a different way to structure rates and increased the proportion fixed revenues to meet MMLD's fixed expenses.

As an example of a possible DDC, UFS' Chris Lund reviewed a proposed \$1/kW residential Demand Charge. The impact on MMLD's revenue structure, if such a charge were implemented, would be to shift about 2% of revenues. This could be a way to move MMLD from 11% to 15 or 17% of fixed revenues and get the fixed revenues more in line with the fixed expenses. (Using data for the month of October: total residential demand was 36,000 kW for the month, so a charge of \$1/kW would bring in \$36,000 x 12 = 2% of our revenue.)

Some utilities have introduced Peak Distribution Demand Charge, and Time-Based Demand Charge in addition to Time of Use charges. You can have an on-peak or critical peak demand charge separated from a distribution demand charge and pull it out of ToU which is KWh based.

Commissioner Smith asked "how do you handle the objection that a DDC is a disincentive to electrify?" Chris Lund explained that "all of that money is recouped in your rates, but buried in your energy kWh charge. The people who are consuming more energy are actually paying more of the fixed costs, and it is not being called out. It is a fairness aspect for the various customers, but also, as the kW distribution charge increases, the energy kWh charge is reduced: it is not a disincentive to these users who electrify."

If a Distribution Charge were adopted, all the points above (structure, trigger and actual levels) need to be discussed and worked out.

**Time of Use (ToU) Charges** have two main interests:

- ToU charges are a way to ensure that retail price of energy correlates more closely with the actual wholesale power costs: MMLD buys energy at market prices for a portion of its portfolio and ToU charges will put MMLD on a better financial footing.
- In addition, ToU charges give customers a clear price signal, which MMLD and other utilities have not done to date. "If you use energy during this time period, it costs more."

This last point is important because, as customers change their usage pattern, there is a positive multiplier effect. Not only does the individual customer benefit from lower prices of energy, but the wholesale costs for Marblehead as a whole are lower (not only because of lower price of energy although that is one component, but also because of lower transmission and capacity charges for the whole town). The individual customer benefits, as do the other residents, in a win-win situation. All these benefits come from changing resident's behavior and encouraging consumption when wholesale costs are low.

**Equity and adoption of ToU Charges.** Are rates seen as equitable by a great majority of customers? With regards to low-income customers, we want to make sure that possible implementation of ToU rates causes no undue burden. This means that customers need to be able to manage their demand and to implement technologies to shift loads in time. This will allow customers to get access to the cheapest power that now is typically available at night or in the morning: EV chargers programmed to charge EVs at night. In this light, one implementation strategy can be to structure ToU so that “average customers” do not notice a change in the bill. A slowly progressive change, over a number of years, may give customers time to adapt.

Justin Connell remarked that the tools exist. If somebody is enrolled in the EV Charging program, or the Connected Homes program, there already is a managed charging period.

The General Manager remarked that “it becomes second nature after a while, like seat belts.”

Commissioner Wolf remarked that the “European experience shows this can become engrained and automatic so that people do not have to even think about it.”

**Implementation considerations.** Number of different rates. A ToU system could have two tier or three tier pricing scheme: two rates rates with “On-peak / Off-peak” rates or three time periods “Critical-peak / On-peak / Off-peak”.

With regards to the **Critical peak** discussion: it is important to understand that there are three elements to MMLD electricity bills: Energy, Capacity and Transmission. The Capacity peak charges happen typically in the late afternoon or early evening during the summer months, while the Transmission peak charges are calculated every month, and typically occur again in the late afternoon early evening. 50% of MMLD’s wholesale costs are driven by the consumption during these 13 one-hour period a year, which determine the capacity and transmission charges.

Justin Connell explained that the impact for MMLD is very important. On average, Municipal Light Plants buy power at \$60/MWh during the year. But during the transmission peaks power can be 250 times more expensive at \$15,000/ MWh while during the capacity peak it is even more expensive: \$35-50,000/MWh. As the price MMLD pays is so different, it is easy to justify a 10 times differential that resident might pay during critical peak. The question becomes: how concentrated do you want to make these peak period to recover the costs and to efficiently modify behavior. If you tighten the hours too much, you might miss the peak.

Commissioner Wolf asked for an estimate of how much money can be saved by modifying behavior?

Justin Connell: Of course, it depends on adoption rate. But every kW avoided at peak transmission leads to \$15 saved, and every kW avoided at peak capacity, \$35 – 40 are avoided. A house with a potential 10kW load, could generate savings of \$350 to \$500 (capacity and transmission) if it’s consumption were to go to zero during peak, and it is linear with every kW avoided. It is not insignificant.

MMWEC has a track record of predicting peak times, and MMLD has started communicating about peaks. But are you better off to introduce a “critical peak” maybe 6 times a month where you communicate with customers, or a broader peak period “On peak” which happens every day?

With regards to two periods ToU with **On peak vs Off peak**: Given the price of power MMLD buys, sensible time periods for “On peak” could be between 4 pm to 9 - 10 pm. Currently, this is the time period when MMLD buys electricity at more expensive rate, while electricity is cheapest from 11 pm to early morning, while late morning and early afternoon is at intermediate price.

This is a method to more fairly charge the customers than having a flat rate, but it is also a way to encourage customers to benefit from lower energy cost by shifting their usage. Commissioner Wolf remarked that we want to have customers change their behavior. We want to have people to pay attention to critical peak; ultimately, we want to flatten demand across the board, not only the transmission and capacity critical peaks.

The General Manager remarked that these two aspects can be independent: whatever we do on ToU, we can continue to call "Critical peak" times with the support of MMWEC. We might give around 6 warnings a month, with probably up to one day notice. Call it 4 or 5 pm the day before. It can become part of the routine of calling out "Peak" but customers have to be aware of the issue and act accordingly.

**Opt-in vs Opt-out vs Compulsory rates.** As part of the design of rates that vary during the day, one must consider whether they would be Compulsory (everybody is affected no matter what) or Opt-out (rate structure will apply unless the resident specifically chooses a different system) or Opt-in (nothing changes for a resident unless they chose to participate in the program). The impact of the rates chosen will depend greatly on the option chosen: the economics of ToU change.

Commissioner Smith remarked that with regards to Critical peak with Opt-out option maybe a relatively straightforward path to our community: Critical peaks affect 50% of our energy costs in a year, we have already started communicating and maybe observing some behavior changes. Lowering critical peak consumption is good financially, it makes things easier on our infrastructure, which everybody is nervous about. For it to be considered, the program has to be "opt out". Commissioner Frechette observed that it is hard to get an automatic response when customers have to be on the lookout for MMLD communications. Commissioner Smith made his comment more explicit: he would like to have a program which is "opt out" from the start, as we can see that Opt in programs like EV charger or Connected Homes have few participants at this stage.

In all situations, we will need a lot of consumer education

### **Are there examples from other towns?**

Commissioner Smith asked MMWEC if there are other municipalities with ToU programs in Massachusetts. We are aware of several pilots, with seemingly low participation.

Zoe Eckert: Groton is implementing a mandatory time of use rate. A few municipalities have EV specific time of use rate. Marblehead would be ahead of the curve by implementing this, compared to most other Munis. Groton, has a mandatory 7c/kWh off peak rate / 70c/kWh on-peak rate for the period 4-8 pm, mandatory, with some exceptions. It certainly is a case study for everybody to look at, with a large differential in rates.

Commissioner Smith: "what about critical peak?" Zoe Eckert: it is part of the conversation, other Munis are thinking about it. Everybody is looking at it.

Commissioner Smith: "Did they have a period of double billing?" Zoe Eckert: "Yes they did."

The town of Marblehead implemented a peak pricing pilot twelve years ago. This exists. The General Manager who implemented that at the time is willing to come to a board meeting to describe his experience with implementation. There is a 40 page electronic report. The General Manager will share the report with the Commission members. Of course, since that time, things have changed quite a bit. We have to think about the ability to make any pilot work and its interest.

## **ToU and Demand management programs**

Demand Management programs like “Connected homes” and “ToU rates” are both tools, to achieve the same objective which is shaping the load curve. ToU is driven by electricity costs, but you can also take into consideration other aspects like emissions costs, emissions. With connected homes, you can get ready for that peak; and there is the incentive of receiving a check for appropriate participation in the program. With Time of Use rates, you can incentivize customer behavior by directly affecting their bills. The psychology of the programs are different.

All of these tools have different characteristics and a combination of both will be necessary to maximize effect. ToU it is a necessary and important tool in the tool box to modify consumer behavior. And demand response programs like a Storage project could be compensated more adequately by displacing load during those times while keeping household activities unchanged.

Commissioner Smith: “this goes to Justin’s comments on different tools in the tool box: Time of Use and Demand Response. Can you double dip into a Connected Homes program and participate in a critical peak rate program, is that correct? One does not ruin the economies of the other?” Zoe Eckert: “We have to evaluate how much more the Air Conditioning or the EV chargers can be pulled back during a critical peak period, to ensure there is no double dipping on the programs. But the tools are in place. For critical peak, yes, you can do both. But for ToU, the check you would get from a Connected Homes program reflects the savings the Light Department realizes from shifting the energy usage.”

Commissioner Smith: “It sounds like a Time of Use might affect the economics of the demand response program.” Zoe Eckert: “not sure we can answer that, we need to model it out.”

**Next steps.** Chris Lund: Given the data in hand, UFS is close to providing information on a possible Distribution Charge Program, but is quite some ways from being able to give you information on ToU. UFS can conduct sensitivity analysis on the peaks, the duration of the on-peak period which will dictate the off-peak / on-peak spread.

General Manager: A next step, from an operation point of view, is to give guidance to our vendors, some directions on what we want. Some of these rate changes may be easier to implement than others and that should be a factor.

Chair Lisa Wolf summarized the conversation: “Stay tuned”.

## **General Manager’s items**

**Implementation of Nexgrid new software.** With the new version of the Nexgrid software (ecoOne v4) MMLD is able to measure data on an hourly basis, and the aggregation is correct. When we tried to aggregate before, the data was not correct. This allows MMLD to study load at the meter level, but also at the transformer or circuit or substation level. An example is shown at the bottom of page 15.

Each transformers had be characterized in the system for this to work correctly, which it now does. This data is very useful to monitor outages, it can also be used for preventive maintenance and to plan for strategic electrification.

**Goals of the General Manager** have been circulated back to the board. Some are clearly multiyear objectives. The Chair highlighted that out of the goals, many should really be handled by the new hires. The fact that we are late in hiring is pushing back the work on these important points. This will be reviewed by board members out of the meeting as we prepare next years’ objectives.

**Residential battery programs.** The Light department elects which MMWEC demand management programs to sign up for: anticipating that we will have an Energy Resource manager, the General Manager signed up to both consumer and commercial / industrial programs. This program will be limited to the batteries that participate in the Connected Homes program. The list of brands is growing with the Duracell brand part of the program. Commissioner Hull will meet with Duracell to become a certified installer of Duracell batteries later this month.

Discussions are on-going with Duracell, which commercializes Li-ion iron phosphate batteries, for a program similar to Vermont Green Mountain's. Who owns the batteries will depend on pricing. The program could include some installation commitments. MMLD is already talking with some possible location owners. Do the owner have to get solar? Answer no. Duracell wants to move batteries, and if MMLD can do this in a responsible way, then this is something we need to look at. It would be good marketing for Duracell as well as sales, as they want to show usage cases. In the case where MMLD owns it, what benefit would the resident get? There can be different models for customers: one could have price of battery and reasonable cost of installation be paid for over time on electric bills. Directionally, this could be an interesting program for the department. It will depend on what the reasonable installation costs are. And we need to do this responsibly and have the appropriate interaction with the Fire Chief. People want these. If everybody is onboard, this will be of interest.

Iron phosphate runaway characteristics are different from Li Ion, they are even safer, runaway time is slower. This is important to design a containment strategy. The town will follow the State Fire Marshall guidance to install any battery. Installation authorization, will involve multiple actors: interconnection permit with MMLD, ensuring that installation is up to code to the satisfaction of the Building Inspector and Fire Chief by the building inspector. And if there is a new structure, shed or building in old town, the Old and Historic District Commission will have purview on how it looks from a public way.

**Village 13 substation.** MMLD has received a design proposal for the concrete protection of the forced sewer pipe and electrical buried conduits. MMLD will review, as will the water and sewer department, which will involve the South Essex Sewer district and their engineering firm. Once the design is set, the proposal will be put out for competitive bids and work will take place in the spring.

**MMLD insurance policy review.** The General Manager, the Town Insurance administrator, Commissioners Smith and Yarmoff participated in the review of MMLD insurance policies. Further review will be necessary in the coming years when MMLD introduces different types of equipment (batteries, solar arrays ...).


**Fence and Gate of the 80 Commercial Street property.** The vendor has been selected and was on site last week. Work will start in mid-March for a possible 6 to 10 weeks-duration. The work will include a child proof gate for Hammond Park, and a new sidewalk down Commercial Street will provide access to Hammond Park, adding drainage. This plan has been reviewed with the Office of Coastal Zone Management and other stakeholders.

**Motion for adjournment** was moved by Commissioner Frechette, seconded by Commissioner Smith, unanimously approved. The meeting concluded at 6:06 pm.

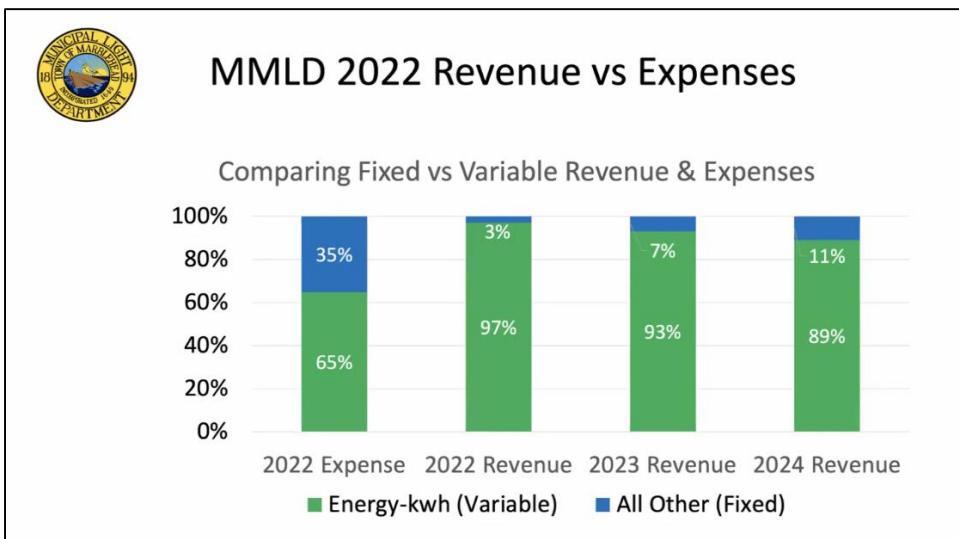
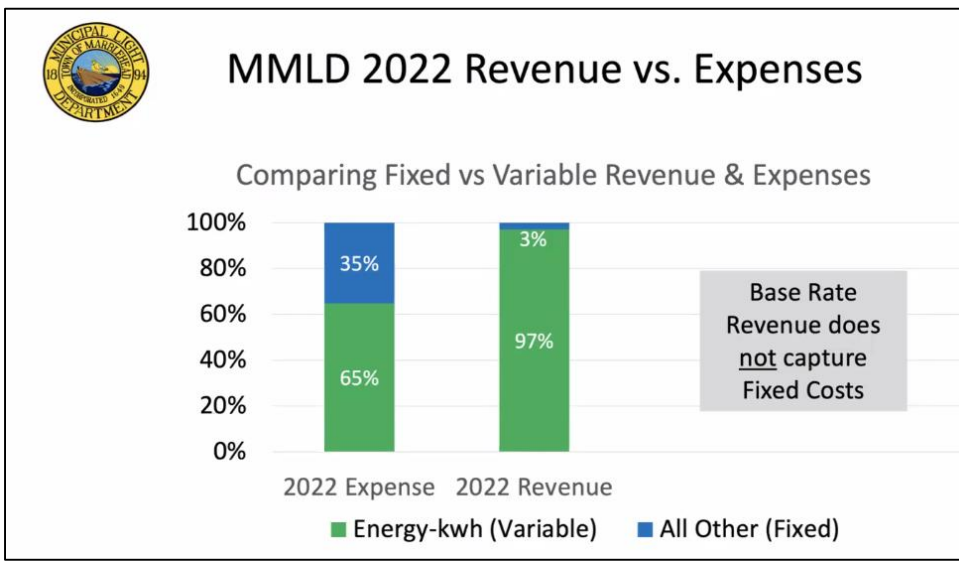
Next meetings of the Light Commission are: December 12, 2023, which will be mainly an Executive Session, and December 19, 2023 for the next regular Commission meeting.

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## 2024 Rate Change Review





## Base Rate Planned Changes

Customer Class	Total Customers	Current Base Rate	2023 Base Rate	2024 Base Rate
Residential	8,915	\$4.25	\$11.25	\$18.50
Small Commercial	1,268	\$5.00	\$18.50	\$32.25
Large Commercial	56	\$10.00	\$61.75	\$113.50
Off Peak Water Heating (G)*	87	\$4.25	\$8.25	\$12.00
Storage Heating (S)*	10	\$4.25	\$11.00	\$17.75

\* (G) & (S) - Grandfathered rates



## January 2024 Residential Rate Changes

	Rate Restructure Jan-23	Rate PPA Change Jun-23	Rate PPA Change Nov-23	Planned Rate Restructure Jan-24
MMLD residential rate (kwh)	\$0.1969	\$0.1969	\$0.1969	\$0.1895
PPA (wholesale power cost adjustment)	\$0.0250	\$0.0050	\$0.0000	\$0.0000
<b>Total energy cost (per kwh)</b>	<b>\$0.2219</b>	<b>\$0.2019</b>	<b>\$0.1969</b>	<b>\$0.1895</b>
Avg residential customer monthly energy use - kwh	662	662	662	662
average monthly residential energy cost	\$146.90	\$133.66	\$130.35	\$125.45
Base rate	\$11.25	\$11.25	\$11.25	\$18.50
NYP&A Hydro credit	-\$2.25	-\$2.25	-\$2.25	-\$2.25
<b>Average residential monthly bill</b>	<b>\$155.90</b>	<b>\$142.66</b>	<b>\$139.35</b>	<b>\$141.70</b>
% change from Jan 2023	na	-8.5%	-10.6%	-9.1%



## January 2024 Residential Rate Changes

	Average Customer		Light Use Customer		Heavy Use Customer	
	Rate Restructure Jan-23	Planned Rate Restructure Jan-24	Rate Restructure Jan-23	Planned Rate Restructure Jan-24	Rate Restructure Jan-23	Planned Rate Restructure Jan-24
MMLD residential rate (kwh)	\$0.1969	\$0.1895	\$0.1969	\$0.1895	\$0.1969	\$0.1895
PPA (wholesale power cost adjustment)	\$0.0250	\$0.0000	\$0.0250	\$0.0000	\$0.0250	\$0.0000
<b>Total energy cost (per kwh)</b>	<b>\$0.2219</b>	<b>\$0.1895</b>	<b>\$0.2219</b>	<b>\$0.1895</b>	<b>\$0.2219</b>	<b>\$0.1895</b>
<b>Avg residential customer monthly kwh use</b>	662	662	300	300	1,100	1,100
average monthly residential energy cost	\$146.90	\$125.45	\$66.57	\$56.85	\$244.09	\$208.45
Base rate	\$11.25	\$18.50	\$11.25	\$18.50	\$11.25	\$18.50
NYP&A Hydro credit	-\$2.25	-\$2.25	-\$2.25	-\$2.25	-\$2.25	-\$2.25
<b>Average residential monthly bill</b>	<b>\$155.90</b>	<b>\$141.70</b>	<b>\$75.57</b>	<b>\$73.10</b>	<b>\$253.09</b>	<b>\$224.70</b>
Change from Jan 2023 %	na	-9.1%	na	-3.3%	na	-11.2%
Change from Jan 2023 \$	na	-\$14.20	na	-\$2.47	na	-\$28.39

300 to 1,100 kwh/mo range represents 72% of customers



## Proposed 2024 Revenue with New Rates

		Base Rate	2024	UFS	UFS			Estimated	
	Customers	Proposed	Increase	New 2024	Rate	Estimated	Estimated	Total	2 year avg
		2024	Revenue	Rate	+PPA	Base charge	Rate charge	Revenue	Annual MHW
Residential	8869	18.50	\$771,603	0.1895	0.1895	\$1,968,918	\$14,023,000	\$15,991,918	74,000
Off Peak Hot Water	82	12.00	\$3,690	0.1351	0.1351	\$11,808	\$29,992	\$41,800	222
Storage Heat	11	17.75	\$891	0.1560	0.1560	\$2,343	\$9,360	\$11,703	60
Small commercial	1267	32.25	\$209,055	0.1812	0.1812	\$490,329	\$1,993,200	\$2,483,529	11,000
Large commercial	54	113.50	\$33,534	0.1722	0.1722	\$73,548	\$2,651,880	\$2,725,428	15,400
			<b>\$1,018,773</b>			\$2,546,946	\$18,707,432	\$21,254,378	100,682
							Street Lights	\$53,000	
							Solar Credits	(\$23,400)	
							PASNY Credit	(\$20,000)	
							<b>Total Revenue</b>	<b>\$21,263,978</b>	
							<b>2024 budget</b>	<b>\$21,695,800</b>	
							<b>Diff (rev - budget)</b>	<b>(\$431,822)</b>	



## Jan 2024 Rate Changes Implementation Plan

- December 2023 steps
  - Insert notice in Dec monthly bills to inform/remind customers
  - Advertise legal notice in local newspapers
  - Update MMLD website
  - File with MA DPU
- No public information meeting planned
- In effect with January 2024 bills



## Financial Update

1. YTD Sept Operating Statement
2. 2024 Operating Budget draft



## Sept YTD Financial Update

Current Month			(000's)	Year To Date		
Actual	Budget	Variance	Item	Actual	Budget	Variance
9.1	9.2	(0.1)	KWH Sales-Millions	74.4	78.2	(3.8)
1,945.0	2,132.2	(187.2)	Sales Revenue	16,729.0	18,051.3	(1,322.3)
827.0	876.0	(49.0)	Power costs	9,047.0	11,279.0	(2,232.0)
<b>1,118.0</b>	<b>1,256.2</b>	<b>(138.2)</b>	<b>Net</b>	<b>7,682.0</b>	<b>6,772.3</b>	<b>909.7</b>
			Operating Costs			
181.0	195.0	(14.0)	Payroll	1,555.0	1,844.0	(289.0)
175.0	175.6	(0.6)	Depreciation	1,581.0	1,581.0	0.0
48.0	52.0	(4.0)	Benefits	435.0	468.0	(33.0)
25.0	25.0	0.0	OPEB	225.0	225.0	0.0
68.0	68.0	0.0	Pensions	612.0	612.0	0.0
165.0	64.5	100.5	Maint. Supplies	462.0	580.5	(118.5)
20.0	23.0	(3.0)	Office Supplies	222.0	207.0	15.0
5.0	21.0	(16.0)	Outside Services	133.0	189.0	(56.0)
0.0	2.5	(2.5)	Fuel	31.0	22.5	8.5
10.0	5.0	5.0	Insurance	38.0	45.0	(7.0)
3.0	3.0	0.0	Bad Debts	27.0	27.0	0.0
21.0	25.0	(4.0)	All Other	221.0	225.0	(4.0)
36.0	35.7	0.3	Bonds Payable Interest	321.0	321.0	0.0
<b>757.0</b>	<b>695.3</b>	<b>61.7</b>	<b>Total Operat. Costs</b>	<b>5,863.0</b>	<b>6,347.0</b>	<b>(484.0)</b>
361.0	560.9	(199.9)	Operating Income	1,819.0	425.3	1,393.7
59.0	4.0	55.0	Int.Inc./(Exp.)	267.0	36.0	231.0
920.0	564.9	(164.9)	Sub - Total	2,086.0	461.3	1,624.7
0.0	0.0	0.0	MMWEC Flush Inc./(Exp.)	0.0	0.0	0.0
<b>420.0</b>	<b>564.9</b>	<b>(144.9)</b>	<b>Net Income/(Loss)</b>	<b>2,086.0</b>	<b>461.3</b>	<b>1,624.7</b>



## 2024 Draft Operating Budget

Items	Budget		Projected	Proposed
	2022	2023	Actual 2023	Budget 2024***
Total Operating & Maintenance Expense Budget	19,510.0	22,996.0	21,085.0	21,357.4
Surplus Revenues returned to Town of Marblehead	330.0	330.0	330.0	330.0
Revenue Requirement	\$19,840	\$23,326	\$21,415	\$21,687
Projected Sales (Kwh)	101,000	101,000	101,000	101,000

\*\*\* Assumes 5% Contribution to Depreciation Account



## Agenda

### 5:00 New Rate Discussion - Demand & Time of Use

- Define the goals, strategies, metrics
- Data needs – Nexgrid status
- **Board VOTE**- End use of residential analog meters in Marblehead

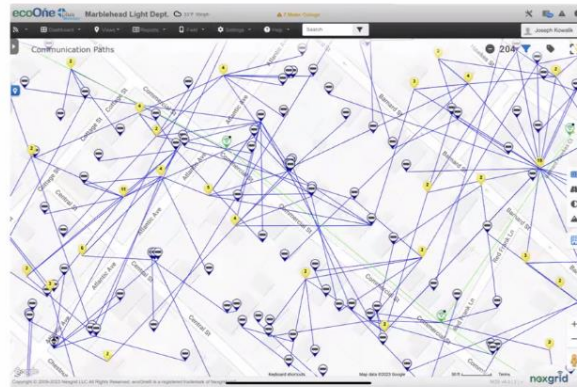


## ZigBee is a weaker signal than Wi-Fi

Variable	Wi-Fi	Z-Wave	ZigBee
Year first launched in Market	1997	2003	2003
PHY/MAC Standard	IEEE 802.11.1	ITU-T G.9959	IEEE 802.15.4
Frequency Band	2.4 GHz	900 MHz*	2.4 GHz
Nominal Range (0 dBm)	100 m	30 – 100 m	10 – 100 m
Maximum Data Rate	54 Mbit/s	40-100 kbit/s	250 kbit/s
Topology	Star	Mesh	Mesh
Power Usage	High	Low	Low
Alliance	Wi-Fi Alliance	Z-Wave Alliance	ZigBee Alliance



## We're running a townwide MESH network



## Goals of New Rate Changes

### **Distribution Demand Charge - Residential & Small Commercial**

- An equitable, cost-of-service based way to increase the % of MMLD revenue based on relatively fixed monthly metric (peak power usage, measured by peak kw), not a variable month-to-month metric (measured by total kwh used)



## Goals of New Rate Changes

### **Time of Use Charge – *All rate classes***

- Price of retail energy correlates more closely to actual wholesale power costs
- Give customers clear retail energy price signals that can financially incentivize customers to save money by changing their energy usage patterns
- In successfully changing customer retail usage patterns, utilities unlock a multiplier effect in realized lower wholesale costs, through lower capacity and transmission costs



## New Rates Discussion...

### **Implementation Considerations**

- Cost and ease of ensuring reliable implementation in AMI metering and billing systems
- Consumer comprehension and acceptance of rates
- Implementation approach? - opt-in, opt-out, or compulsory.
- *Generally seen as equitable by a great majority of customers*
- Other?



## Distribution Demand Charge considerations

- MMLD 2023 Large Commercial Demand Charge is \$6.00/kw, determined by peak 15-minute highest registration in the billing period.
- Residential demand (using GE/Aclara i20+ meters) would be based on highest hourly kw demand in the billing period. Recommend low-rate at introduction e.g. \$1/kw
- In October 2023 the average residential demand was 4.1 kw. Total October residential demand was 36,000 kw/mo



## Distribution Demand Charge considerations

- Assuming annual residential demand of 432,000 kw (Oct 36,000 x 12) @\$1/kw = \$432,000/year.
- \$430,000 equates to 1.2% of a \$20 million MMLD annual revenue
- Widespread customer understanding of demand will be critical to minimizing and mitigating energy price increases, as residential electrification increases peak demand in Marblehead.

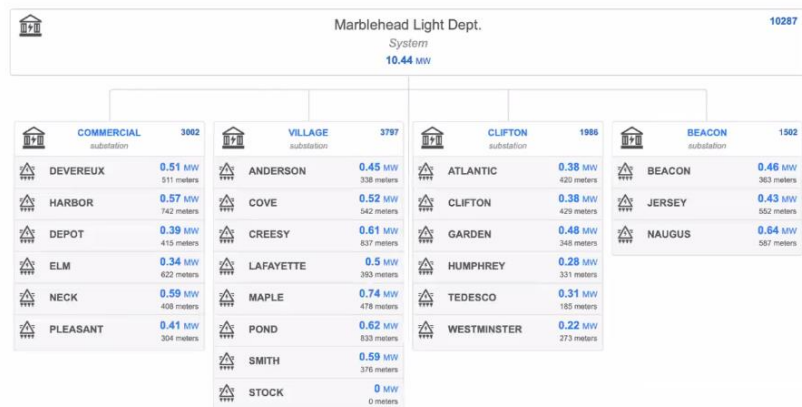


## Time of Use Considerations

- 2 Tier (On Peak & Off Peak) or 3 Tier (On Peak, Off Peak, and Critical Peak)
- 2 Tier Cost of Service pricing... is it based on:
  - (time of day and day of week Real time Localized Marginal Price (RT LMP) of energy or
  - Include an added differential for the including the impact of Capacity Cost and Transmission Cost avoidance
- Is the impact on various household cohorts equitable? e.g. all electric homes, households with children, other?



## MMLD Substation & Circuit level kw Demand data Generated from meter data in Nexgrid ecoOne v4





## Agenda

### 5:30 General Manager Items

- FY 2024 Draft GM/Dept. Objectives
- 2024 NextZero/Connected Homes Energy Efficiency & Rebate elections
- Duracell battery project proposal
- Village 13 substation update
- MMLD insurance policy review
- 80 Commercial Fence & Gate contract

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