Light Commission October 25, 2022 meeting minutes

To: Light Commission: Commissioners
Light Department: J. Kowalik, General Manager, M. Barett, Business Manager
From: Jean-Jacques Yarmoff, Secretary
Date: November 28, 2022
Re: Commission Meeting October 25, 2022

A quorum being present, Light Commission Chair Mike Hull opened the meeting at 4:35 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.

Approval of minutes of previous meetings of August 30, September 8 and September 14, 2022.

Vote #2022-34 Motion to approve minutes moved by Commissioner Wolf and seconded by Commissioner Frechette. Unanimous.

Vote #2022-35 Motion to change the meeting time of the **Commission regular meetings to 4:00 pm** moved by Commissioner Wolf and seconded by Commissioner Yarmoff. Unanimous.

Commissioner Wolf requested that the agenda of this 10/25 meeting also include the review of the timing of the Goals for the General Manager, in line with the memo that was distributed at the previous Commission meeting.

Residential and Utility Battery Storage (BESS) Update: The Commission reviewed a number of potential issues related to residential battery storage systems.

BESS Permitting Process: A meeting took place during week 42 (week of 10/17), which gathered representatives from Marblehead's Town Departments - the Battery Storage Working Group: Building, Wire Inspector, Fire Department, Board of Health and MMLD representatives all participated. The attendees received a list of relevant documents to review (list presented in this 10/25 meeting is enclosed, page 6). The MA Fire Marshal will issue an updated fire code in January 2023, with new guidelines that should specifically address BESS. This may have to wait until the new Governor administration is installed, after January 20. The Fire Chief will wait for the new guidelines to be issued before taking a position on how Marblehead authorizes residential batteries. MMLD will take the lead regarding recommendations for safety of Utility Scale BESS. The final permitting process can be modelled on the solar permit process.

Eventually, the process to permit residential BESS should be part of the town on-line permitting process, with access from the Town website: https://marbleheadma.viewpointcloud.com/

BESS Connection Process: For safety reason, it will be necessary to have the possibility to disconnect /isolate a battery from the grid, which would otherwise energize a line that may have been isolated from the rest of the grid for repairs, for example. The Wiring Inspector inspects connections as per the manufacturer's specifications. It would be useful to have some standard connection templates to ensure safety and the possibility of this safety disconnect.

Incentives for BESS: MMWEC is in the process of revising its recommendations for incentives for residential BESS participating in the Connected Homes program, and will likely recommend increasing the incentives, as the BESS benefit both the residents and the utilities. Whether Tesla batteries will participate in the Connected Homes program seems to be a Tesla commercial issue.

Type of BESS allowable in Marblehead: Any residential battery will provide overall benefits to the town, in terms of peak shaving, in addition to the economic benefits to the home owner. Batteries which participate in the Connected Homes program bring direct economic benefits to the utility, hence the incentives described above that MMWEC recommends to all the municipal light plants. As we resolve the permitting process, we should also make clear which residential batteries are allowed, and which in addition, receive financial incentives.

BESS: Other issues/discussion points.

- Hurricane Ian (9/22) highlighted both potential risks and benefits of BESS: vehicles that had been submerged in salt water have been shown to catch fire. On the other hand, when communities lost power, residential BESS allowed both homes and communities to recover much faster.
- Homeowners wishing to install BESS should be aware of the possible implications for their insurance policies.
- If Tesla batteries installed in Muni towns were to be dispatched by Tesla in a virtual power facility system, as they do with PG&E (CA) and Green Mountain Power (VT), Tesla might find itself in breach of the Massachusetts general law chapter 164.
- Distributed resources, such as solar, residential batteries, and more importantly for the future EV2G (Electric to Grid vehicle charging) all impact current quality, which will become an important issue in the future.

It should be noted that, to the best of our knowledge, Marblehead is the only town in New England that does not currently allow residential BESS.

General Manager Updates: Slides presented are shown from page 7, below.

Financial / Rates updates

MMLD's open position of about 30% of our portfolio is exposing us to the fluctuations of energy prices on the markets. As a result, we have had to increase the PPA in the adjustment mechanism, to ensure that we end the calendar year with a result at equilibrium. This is not a cash flow problem, as MMLD financial position is and remains solid, rather it is a reflection of the legal obligation to show a financial result that is not a loss.

In mid-October, MMWEC published the energy costs forecasts moving forward. With this new forecast, we see a $573K shortfall, causing us to increase the PPA by another $0.036.

A new forecast will come next month, and we will review the PPA charge monthly to take into account both increases and eventual decreases when these materialize next year, possibly after March. While we have enjoyed stable rates over the last years, the current market conditions are unprecedented and are causing the rapid rate changes. All of MMLD's operating expenses are stable and under control, at or under budget, and the single reason for the changes are the fossil fuel induced energy price changes' impact on our open position. We will review the 2023 budget at the next board meeting.

The current situation is summarized in the slide "Residential Rate Changes" page 8: where energy costs stood at $0.1735 in January, they are now at $0.2685 for November. This is not specific to Marblehead, and neighboring towns have actually higher increases as their exposure to the fossil fuels is larger. For MMLD, roughly half of our power rates are locked in long-term contracts. About 20% is hedged at various forward prices, the details of which will be shared with the Commission. The rest, about 30%, is exposed to market fluctuations.

The rate restructuring that MMLD has planned is independent from these evolving market conditions and should go forward as planned. MMLD is currently planning to "reset the PPA" to 4 cents at the same time, which will allow to dial down the PPA as market conditions allow.

To better communicate about these issues, MMLD is looking at adding a communication insert page to the bills, this is work in progress. MMLD is also planning to hold a public meeting to explain the on-going changes to all residents.

Solar project dedication in Ludlow

MMLD is a participant in the largest single solar field in Massachusetts, a 35 acres, 23,000 panels, 6.9 MW AC array. The dedication took place on October 17 in presence of the family of Master Sergeant Cotton who served on the base and advocated for a solar field. A Marblehead resident serving in the Air Force reserve at the base, Mike Lewis, also participate with his unit in the dedication ceremony.

Marblehead has a little over 10% ownership of the array, which is expected to produce 1,500 MWh per year, and will add 1.5% of clean power to our portfolio. This solar plant qualifies for an IRA investment, when it finally comes online at the beginning of 2023.

MMWEC Television commercials: Joe Kowalik showed the MMWEC commercials which explains what the Municipal Light Department bring to their communities.

<u>Strategy Working Group update</u>

The Strategy Working Group met two weeks ago: Joe Kowalik, Mike Hull, JJ Yarmoff and Kevin Colcord, a Marblehead resident, management consultant helping on strategy. The group reached a consensus to generate a long-term demand forecast as a first step. We will meet again next Thursday.

<u>Sustainability Working Group update</u>

In the two meetings since the last board meeting, the Sustainability Working Group has focused on putting in place a "Customer journey map" which identifies how a customer goes through a process of awareness to strategic electrification, an end goal important from the Light Plant perspective. This allows to identify where the touch points with the customers are to help them along that journey. Bill

Bullock at MMWEC is familiar with and has been helping the group think through this process. Peter Barnett, a resident and marketing expert, also joined this meeting. Several action items were decided, the first one of which is a customer survey, to better understand customer segments and who we are marketing to. This has been discussed with Great Blue, which has made a proposal for such a survey and has experience with MLPs. We have decided to proceed, and the next step is to come up with a set of questions for the survey. The survey will be digital, the goal is to have about 400 answers; the survey will be presented through two billing cycles, to have information early next year. Some questions/answers could benefit the strategic plan as well.

Goals of the General Manager: Timing of goals

We need to reconcile the time periods for the General Manager's goals, given a contractual year April to April, and MMLD operations on a calendar year and clarify the process around setting goals and review period. As these are contractual matters, we should be precise about it. Jean-Jacques Yarmoff, Simon Frechette and J. Kowalik will meet off line to propose a process and review the various goal proposals.

The agenda for the meeting having been exhausted, a motion was made to adjourn and adopted unanimously at 7:10 pm.

Documents and slides shown during Light Commission Meeting 10/25

Agenda

1. Approve minutes of Sept 27th meeting
2. Residential & Utility Battery energy storage updates-
3. MMLD financial update
4. Ludlow, MA Solar PV dedication
5. Tree trimming update
6. MMWEC – municipal power video
7. Strategy Committee update
8. Sustainability Committee update
9. Public Comments

Battery Storage Working Group -10/13/22

- Building Dept. – Wiring (electrical) Inspectors Ron Marks & Eric Chisholm
- Fire Dept.- Chief Jason Gilliland, Capt./Fire Prevention Gregg McLaughlin
- Dept. of Health- Director Andrew Petty
- MMLD Board and licensed electrician – Mike Hull
- MMLD Dept- GM Joe Kowalik, Tech Services Mgr-Colin Coleman

Lithium-Ion Battery Electric Storage System (BESS) – Relevant documents for review

October 19, 2022

1. *MMLD Terms and Conditions for Electric Service* – see highlighted sections 3, 15F, 15L, 15M, 17B, and 19B, which may apply to customer BESS installations.
2. Joint Memorandum from Mass State Fire Marshal and Dept. of Fire Services, Div. of Professional Licensure – *Superseding Guidance for Energy Storage System (ESS) Installations in One and Two-Family Dwellings* – June 7, 2021
3. MMLD insurance company AEGIS (Associated Electric & Gas Insurance Services Limited) – white paper Nov 2021 *Loss Control Lithium-ion Battery Energy Storage Systems.* A well-written, thorough, non-technical risk analysis with measures to mitigate risks. Includes a reference page with additional sources sited.
4. UL Research Institute- The Challenges of Ensuring Safety for Battery Energy Storage Systems. January 2021. Watch a good 30-minute overview of BESS and EV benefits, fire risks, and the recent evolution of relevant UL standards
5. Fire Safety Research Institute (FSRI) & UL – Fire Service Considerations Investigation of the Az Li-Ion ESS Incident– a 2019 2.16 MW Lithium-Ion BESS explosion in Surprise, Az. that resulted in serious injuries to four first responders. A detailed 40-minute video of the incident investigation and recommendations. (The first speaker may be difficult to understand, but her role is to provide a 90-second introduction to the main speakers.)
6. UL 9540 – BESS standards overview webpage.
7. UL540A – Test methods for BESS thermal runaway. Watch the 2 minute video
8. UL webpage - Environmental Impacts of Lithium-Ion Batteries March 16, 2022. https://ul.org/research/electrochemical-safety/getting-started-electrochemical-safety/environmental-impacts. (Watch the two short videos on this webpage.)
9. Seattle Times- Tesla's Big Batteries Aren't the Fire Problem – Lithium Is. 10/2/2022. https://www.seattletimes.com/business/teslas-big-batteries-arent-the-fire-problem-lithium-is/
10. Fire at PG&E's Tesla battery in California is now under control. 9/22/2022. https://www.pv-magazine.com/2022/09/22/fire-at-pges-tesla-battery-in-california-is-now-under-control/
11. Types of Lithium-Ion Batteries – the battery chemistry determines the level of thermal runaway risk https://batteryuniversity.com/article/bu-205-types-of-lithium-ion
12. APPA Public Power Current – October 17, 2022. *Recent California Energy Storage Battery Fire Draws Renewed Attention to Storage Safety Issues.* A good overview article of recent BESS incidents and the continuing need for safety standards.

Source: BESS regulation reading list 2022-10-20 v3.doc

Financial Situation - Sept 2022

- With our current $0.056 PPA our year-end expenses will exceed revenue by $778K
- The gap is due to increased wholesale energy costs in the ISO-NE “day ahead” market, from plants powered by natural gas. Open power represents ~30% of our portfolio.
- To close the gap we need to increase the PPA in October by $0.034…average residential bill increase of 22.31
- Our operating cash position remains solid - $5.4 million

Financial Situation - Oct 2022

- The $0.056 PPA went into effect with October bills
- In mid-Oct MMWEC published new, higher priced 2022-6 power forecasts.
- Sept actuals and the new forecasts show a new $573,000 shortfall. We need to increase the PPA in November by $0.036…average residential bill increase of $23.83
- Our operating cash position remains solid - $5.3 million
- MMWEC will update their forecasts in mid-Nov.
- We will review and adjust PPA monthly;
- Still plan Jan rate restructuring
- Non-energy 2022 YTD expenses below budget

Residential Rate Changes - Recent History via Power Cost Adjustments

	Jan-22	Mar-22	Aug-22	Oct-22	Nov-22
MMLD residential rate	$0.1425	$0.1425	$0.1425	$0.1425	$0.1425
PPA (wholesale power cost adjustment)	$0.0310	$0.0410	$0.0560	$0.0900	$0.1260
Total energy cost (per kwh)	$0.1735	$0.1835	$0.1985	$0.2325	$0.2685
average residential monthy use - kwh	662	662	662	662	662
monthly residential energy cost	$114.86	$121.48	$131.41	$153.92	$177.75
Base rate	$4.25	$4.25	$4.25	$4.25	$4.25
Hydro credit	-$2.50	-$2.50	-$2.50	-$2.50	-$2.50
Average residential monthly bill	$116.61	$123.23	$133.16	$155.67	$179.50
% increase from Jan 2022		6%	14%	33%	54%

Marblehead Municipal Light Department
Operating Statement
SEPTEMBER 2022

Current Month			(000's)	Year To Date		
Actual	Budget	Variance	Item	Actual	Budget	Variance
9.3	9.1	0.2	KWH Sales-Millons	78.9	77.8	1.1
1,853.0	1,713.9	139.1	Sales Revenue	14,768.0	14,634.4	133.6
1,010.0	807.0	203.0	Power costs	9,899.0	8,952.0	947.0
843.0	**906.9**	**(63.9)**	**Net**	**4,869.0**	**5,682.4**	**(813.4)**
			Operating Costs			
210.0	206.0	4.0	Payroll	1,535.0	1,576.0	(41.0)
104.0	104.0	0.0	Depreciation	937.0	936.0	1.0
92.0	50.0	42.0	Benefits	423.0	444.0	(21.0)
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
33.0	64.0	(31.0)	Maint. Supplies	245.0	568.0	(323.0)
30.0	22.9	7.1	Office Supplies	186.0	206.3	(20.3)
33.0	14.5	18.5	Outside Services	280.0	131.3	148.7
0.0	2.5	(2.5)	Fuel	20.0	22.5	(2.5)
0.0	5.0	(5.0)	Insurance	33.0	40.0	(7.0)
3.0	3.0	0.0	Bad Debts	23.0	27.0	(4.0)
20.0	18.0	2.0	All Other	156.0	162.0	(6.0)
36.0	35.7	0.3	Bonds Payable Interest	321.0	321.0	0.0
654.0	**618.6**	**35.4**	**Total Operat. Costs**	**4,996.0**	**5,271.1**	**(275.1)**
189.0	**288.3**	**(99.3)**	**Operating Income**	**(127.0)**	**411.3**	**(538.3)**
1.0	1.0	0.0	Int.Inc./(Exp.)	(2.0)	9.0	(11.0)
190.0	**289.3**	**(99.3)**	**Sub - Total**	**(129.0)**	**420.3**	**(549.3)**
0.0	0.0	0.0	MMWEC Flush Inc./(Exp.)	0.0	0.0	0.0
190.0	**289.3**	**(99.3)**	**Net Income/(Loss)**	**(129.0)**	**420.3**	**(549.3)**

MMWEC/MMLD Solar PV Array dedication

- The largest single solar field in Mass – 35 acres, 23,000 panels
- The largest municipally-owned solar project in Mass
- A 6.9 MW AC array
- Named in honor of Master Sergeant Alexander Cotton
- Sited on the MMWEC campus Ludlow, Mass

MMLD ownership at Cotton Memorial Solar Array

- 10.87% ownership
- 1,500 MHW per year
- Equates to 1.5% of MMLD's 2021 retail sales
- Could power 160 homes for one year
- Displace over 700 tons of CO2 emissions per year, based on current ISO-New England averages.


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WMGLD
PMLD
PMLD
HMLD
HMLD
TOWN OF BOLTON
MUNICIPAL LIGHT
DEPARTMENT


SHELD
South Hadley Electric Light
DEPARTMENT
HG&E
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PMLD
PAXTON LIGHT
MUNICIPAL LIGHT PLANT
STERLING