

# Light Commission June 27, 2023 meeting minutes

To: Light Commission: Commissioners  
Light Department: J. Kowalik, General Manager  
From: Jean-Jacques Yarmoff, Secretary  
Date: July 19, 2023  
Re: Commission Meeting June 27, 2023

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A quorum being present, the meeting was brought to order at 4:01 pm. The meeting was held in person and with remote 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: Frechette, Hull, Smith, Wolf and Yarmoff participated in person;  
Light Department: General Manager, J. Kowalik; Distribution Manager, Greg Chane and  
Manager of Technical Operations, C. Coleman

## **Organization of the Commission**

**Vote #2023-24** A motion to elect Commissioner Wolf as Chair of the Light Commission was moved by Commissioner Smith, seconded by Commissioner Yarmoff. **Four in favor, one abstention.**

**Vote #2023-25** A motion to elect Commissioner Frechette as Vice-Chair of the Commission was moved by Commissioner Yarmoff, seconded by Commissioner Smith. **Four in favor, one abstention.**

**Approval of Minutes** of previous meeting.

**Vote #2023-26** A motion to approve the minutes of the Light Commission meetings of May 4 was moved by Commissioner Wolf and seconded by Commissioner Smith. **Unanimous.**

## **Comments from the Public**

Eileen Mathieu commented that she has been participating to the meetings of a state-wide group: the Building Electrification Accelerator. This group debates issues that are affecting all communities and has creative ideas on gathering information, which could be useful to this Commission.

## **Financial updates**

**Monthly Operating financials: Reduction of Energy Costs.** With a milder winter than expected and decreasing energy costs, MMLD has lowered the PPA charge from 2.5 to 0.5c.

**Hedging of open positions.** With regards to energy procurement, our open positions for 2024 currently represent around 40% of energy load forecast. MMLD wants to reduce the open positions to about 20%. The market for forward contracts is changing, and some of the new contracts come with carbon attributes, which is new. MMWEC is in discussions for some of these contracts, which may be longer term than current hedges. MMWEC will present new options to MMLD in August. At this time, MMLD is aiming to close half of its open positions now, with financial instruments that will start January 2024, leaving 30% of open positions. A review will take place when new contracts become available in the coming months, at which time the General Manager will reduce the remaining open positions to 20% of the total.

**Other Variances.** Tree-trimming activities with Meyer only started mid-May, leading to a seasonal variance that will be offset in coming months. Payroll variance comes from personnel changes: distribution manager and office manager. MMLD is reviewing the office manager role, and is planning new hires over the summer. Greg Chane is actively looking to fill positions in the line crew. MMLD has not yet been able to close the 2022 books as we are still waiting for final numbers from the town, which we should be receiving this week. We will report to DPU as soon as we close the books. Commissioner Yarmoff asked about the accounts that MMLD uses, which financial institutions are they with, are they interest bearing accounts. While MMLD does not have control of some of these accounts, the capital depreciation fund for example is under its control. This will be reviewed at the next meeting.

### **Village 13 Update**

**Transformer and Switch Gear update.** MMLD received design drawings for the transformers, they were approved on June 22<sup>nd</sup>, which triggered a milestone payment under the contract with Virginia Transformers. Delivery of the transformers is confirmed for end of 2<sup>nd</sup> quarter of 2024. We need to be ready to receive them at that time. Switchgear drawings have been received from Myers Controlled Power on 6/22 and are being reviewed.

**Site preparation and access.** Preparations are on-going with the cleaning up of the Village 13 site: this activity will not be rate limiting. Bay Side Engineering is the specialized engineering firm that our vendors use to plan the transportation of heavy or exceptional loads in Massachusetts. The transformers represent a load of 100,000 lbs, while the switchgear load size will be 15 ft. wide. The access road to the site will receive a number of truck loads: the transformers will come in two loads, the switchgear in 5 or 6 loads, the crane to install the equipment will be another two loads, and several concrete mixers loads also need to be planned for. The ROW from Bessom Street to Village 13 will be used to convey these loads to the site and needs to be adapted for heavy and wide loads. This includes the straightening of the path and chiseling away some rocks (to be done by the Highway Department), removal of the fence of the Sewer Department plot. During this work, the path will probably not be available as heavy trucks will be using the ROW. We do not yet have a precise timetable of when this will affect the use of the footpath by the public.

**Protecting the sewer line.** The trucks will cross over the buried forced sewer pipe in order to get to the gate of Village 13. The sewer pipe precise location needs to be located with vacuum digging, and a below-the-grade “bridge” will be built to protect the sewer pipe from the load. A service contract with Bayside Engineering will allow the preparation of a RFP. This document will allow MMLD to put out the project for bids. The General Manager is therefore asking the Commission to approve an expense of \$25,500 with Bayside Engineering Inc., of Woburn, Mass for Engineering Design Services related to the installation of a new culvert to protect the Town’s forced sewer main pipe, located in front of the Village 13 substation, from heavy equipment loads that will be delivered to the substation.

**Vote #2023-27** Motion to approve an expense of \$25,500 with Bayside Engineering Inc., of Woburn, MA, for Engineering Design Services related to the installation of a new culvert to protect the town’s forced sewer main pipe, located in front of the Village 13 substation, from heavy equipment loads that will be delivered to the substation was moved by Commissioner Yarmoff and seconded by Commissioner Frechette. **Unanimous.**

### **Project 2023A.**

**Decision to sign PPA for 2023A.** This Power Purchase Agreement (PPA) is a contract with NextEra Energy for the supply of 3MW of firm, around-the-clock carbon-free power, from 2028 to 2049. This contract is backed by the Seabrook Nuclear power plant, but if Seabrook can't generate power, NextEra is obligated to supply energy and environmental attributes from another source in their portfolio. This carbon-free power will be provided at a very attractive price, with low rates of increases over the life of the contract reflecting inflation. Commissioner Yarmoff remarked that the price of the energy is such that, if it were to be introduced into MMLD's portfolio today (rather than in 2028, as it will be), the bill that MMLD pays for power would decrease by 12%. We will receive 26,280 MWh/yr, which equals to 25% of our planned 2023 wholesale power purchases. This contract represents a major addition to MMLD's supply portfolio. Contract documents have been sent on June 22 for signature before the end of the month. At previous meetings, the Commission empowered the General Manager to discuss with MMWEC entering into this contract, and needs to formally approve the signature of the contract.

**Vote #2023-28** Motion to approve the decision to enter into a 22-year PPA Agreement for the purchase of 3MW firm around-the-clock power from NextEra Energy Marketing LLC that includes environmental attributes associated with the energy generated was moved by Commissioner Frechette and seconded by Commissioner Yarmoff. **Unanimous.**

**Implications of 2023A in MMLD portfolio.** The slides from the bottom of page 9 present the evolution of Marblehead's Power Portfolio following the decisions the Light Commission has taken at the last two meetings. The first slide shows the evolution of power needs in Marblehead (grey area) and the part of energy provided under long-term contracts (colored area). The slides also shows the Commonwealth emission constraints (in black), and the Town targets to reach Net-Zero by 2040 (in red). The Commission also established carbon-free power targets for MMLD of 70% by 2028 and 85% by 2033 (shown in red circles on the slide at the top of page 10).

The second slide page 10 shows that the 2023A PPA goes a long way for MMLD to reach its carbon-free power target in 2028, while at the same time reducing the cost of the energy purchased. With other projects on-going, such as MMLD's participation in the Ludlow solar field as well as solar projects on schools, MMLD should be able to meet the 2028 target.

### **Distribution System**

**Catching up on deferred maintenance.** As maintenance has been deferred for a long time, the Light Department is organizing a thrust to update the distribution system and some key distribution assets. To the question: "Did the rate payers enjoy artificially low rates for long periods while the maintenance was not being done?" asked by Commissioner Frechette, the General Manager's reply is an unequivocal: "Yes, there is no way around it." The General Manager presented and discussed a document that describes the distribution system upgrade priorities and timing (which may evolve). This lists all major items that need to be dealt with in the short term to keep the integrity of the existing distribution system, but is not a comprehensive list of issues that need to be addressed for the middle or long term. The document is shown on page 11, timeline for each of the projects is proposed on page 13. Readers interested in the detailed discussion are invited to refer to the recording of the meeting.

The work to be done includes:

- Review of all poles, lines and transformers, with Osmose, a specialized firm;
- Evaluation of poles for the 23 kV line, replace one 13 kV distribution line (Village 13 to West Shore Dr.)
- Replacement of Village 13 principal substation (as discussed above);

- Substations: Replace the JCC substation; upgrade the Beacon street switchgear substation;
- Installation of utility scale battery: the General Manager asked for help of Commission Members to discuss with other department boards possible siting options: MMLD needs additional space, especially as additional batteries (possibly long duration) will likely be installed in the future (*e.g.* discussions with Form Energy; see also DOER study of long duration BESS in Massachusetts).
- Communication: replace some components of the EcoOne Data communication system;
- Security upgrades (cameras and lights, linked by fiber optic link);
- Commercial projects. In addition, major commercial projects need to be accommodated on the distribution system (Vinnin Square, Intrepid Circle).

In addition, while not strictly a distribution issue, building capacity and people skills of MMLD for emergency response on solar projects will be considered.

Commissioner Hull leaves the meeting at 6:19 pm.

**Underground wires.** As part of the upgrade of failing lines, the general manager highlighted the specific issue of underground lines, which were not properly laid down in conduits, but rather just buried. As they fail, there is no easy way to replace these lines, and new trenches and pipes have to be laid. This is about 10 times as expensive as setting up overhead lines. Commissioner Yarmoff remarked that MMLD needs to have a clear policy for burying wires: there are situations where, for reliability or other purposes, it makes sense to bury wires and where MMLD will carry the cost. Outage data can guide us for ensuring the appropriate policy is in place. Where residents want distribution lines to be buried outside of this policy, appropriate cost sharing by residents will need to be discussed as was done in the case of Ocean Avenue. The MMLD policy for undergrounding distribution lines will be reviewed at a later meeting.

**EV charging policy.** Charging of EVs has the potential to add considerably to the load served by MMLD's distribution system. In addition, not all residents can install EV charging where they live. The Light Department will be affected by, and needs to have an opinion on, the public charging policy in Marblehead. This should be part of a demand management plan.

As of mid-May, there are 430 EVs registered in Marblehead, but only 87 level-2 chargers have been provided by MMLD; a new public website with regularly updated DMV data should be available soon.

**Whole system replacement.** The previous analysis is a bottoms-up update of the current system, focusing on areas where deferred maintenance causes immediate reliability risks. While very important work, this does not address the fact that in a not very distant future, the distribution system will have to be able to deliver much more electricity to residents, possibly twice as much. If we project ourselves 25 years ahead, most of the current system will have been replaced: either because it is currently obsolete, or because it will become obsolete over the course of these 25 years. A very rough estimate of the cost of replacement of the system shows that the total expense is about \$50M, or \$2M a year (see page 14). This is in line with current depreciation account accrual, but this number is an underestimate as 1) the new system will need additional assets not taken into account in this rough calculation, and 2) important costs drivers, such as labor, are not included. This raises several questions:

- will we have the financial resources to update the distribution system? Should the amounts we add to the depreciation account be increased again (they were increased from 3% to 5% last year, and could reach up to 8%)?
- Equally important is: What is the optimal system we will need in 25 years? What distribution voltage?

The Chair recommended that this conversation be taken up by the Strategy Working group and results be brought back to this board.

**Solar on schools**

As an update, MMLD met with Solect, visited each site and identified sites for batteries at each school location. Size of battery remains tbd, Solect is looking at numbers and will come back to us. They are also looking at a PPA (where MMLD would purchase the power) as well as a PSA, where MMLD would own the installation. A more in depth update will take place after hearing back from Solect.

**Interconnection process**

The proposed process for interconnection of Distributed Resources (Solar PV array, or Battery Electric Storage System) in Marblehead is shown on the graph on page 15. This document will eventually be published, it is being reviewed by the Building department and the Fire chief: it was set up as a team effort. Not included in this flow chart is the Old Historic District Commission steps that may be necessary.

It would be appropriate, during this process that residents be encouraged to enroll in the Connected Homes program and get incentives for doing so. This part, which needs to be further discussed, is shown with the dotted lines at the bottom of the chart. Commissioner Wolf stated that our current battery policy does not allow customers to install the batteries of their choice. We should reword the policy, as there should be no restriction on the type of battery that customer can install. It would be appropriate, however, for the incentives MMLD provides to only be available to residents participating in the Connected Homes program. A new policy for batteries will be proposed at the next board meeting.

The Light Commission meeting ended at 6:52 pm after a motion to adjourn was proposed, seconded and unanimously adopted.

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## Documents presented during May 30 Light Commission Meeting



### Agenda

- Reorganization Vote
- Approve minutes of May 30th
- Public Comments
- GM Updates



### Village 13 upgrade

- Transformer- Virginia Transformer:
  - Engineering Design Drawings received 6/9, approved 6/22
  - MMLD 50% payment milestone payment now in process -\$1.3 MM
  - Contract Schedule for Delivery...May-June 2024
- Switchgear- Myers Controlled Power (MCP)
  - Engineering Design Drawings received 6/22
- Clean-up of the Village 13 site is underway
- **Approve Bayside Engineering Design Services Contract** to ensure safe heavy load transit over force main sewer pipe – \$25.5 K



### Monthly Operating Statements

- Lower energy costs and moderate winter and spring temperatures and have created a significant positive YTD variance...
- PPA was reduced in June, from 2.5 cents/kwh to 0.5 cents/kwh
- MMWEC is recommending reducing our open positions
- See April and May, separate financial statements

**Marblehead Municipal  
Light Department  
Operating Statement  
APRIL 2023**

Current Month			(000's)	Year To Date		
Actual	Budget	Variance	Item	Actual	Budget	Variance
<u>7.2</u>	<u>7.6</u>	<u>(0.4)</u>	KWH Sales-Milions	<u>32.1</u>	<u>33.9</u>	<u>(1.8)</u>
1,716.0	1,756.9	(40.9)	Sales Revenue	7,543.0	7,826.4	(285.4)
<u>1,011.0</u>	<u>1,151.0</u>	<u>(140.0)</u>	Power costs	<u>4,871.0</u>	<u>6,055.0</u>	<u>(1,184.0)</u>
<u>705.0</u>	<u>605.9</u>	<u>99.1</u>	<b>Net</b>	<u>2,672.0</u>	<u>1,773.4</u>	<u>898.6</u>
<b>Operating Costs</b>						
128.0	186.0	(58.0)	Payroll	662.0	791.0	(129.0)
175.0	175.7	(0.7)	Depreciation	702.0	702.7	(0.7)
47.0	52.0	(5.0)	Benefits	193.0	208.0	(15.0)
25.0	25.0	0.0	OPEB	100.0	100.0	0.0
68.0	68.0	0.0	Pensions	272.0	272.0	0.0
28.0	64.5	(36.5)	Maint. Supplies	114.0	258.0	(144.0)
24.0	23.0	1.0	Office Supplies	76.0	92.0	(16.0)
13.0	21.0	(8.0)	Outside Services	58.0	84.0	(26.0)
0.0	2.5	(2.5)	Fuel	3.0	10.0	(7.0)
0.0	5.0	(5.0)	Insurance	24.0	20.0	4.0
3.0	3.0	0.0	Bad Debts	12.0	12.0	0.0
28.0	25.0	3.0	All Other	74.0	100.0	(26.0)
<u>36.0</u>	<u>35.7</u>	<u>0.3</u>	Bonds Payable Interest	<u>143.0</u>	<u>142.7</u>	<u>0.3</u>
<u>575.0</u>	<u>686.4</u>	<u>(111.4)</u>	<b>Total Operat. Costs</b>	<u>2,433.0</u>	<u>2,792.4</u>	<u>(359.4)</u>
130.0	(80.5)	210.5	<b>Operating Income</b>	<b>239.0</b>	<b>(1,019.0)</b>	<b>1,258.0</b>
<u>31.0</u>	<u>4.0</u>	<u>27.0</u>	Int. Inc./ (Exp.)	<u>79.0</u>	<u>16.0</u>	<u>63.0</u>
<u>181.0</u>	<u>(76.5)</u>	<u>237.5</u>	<b>Sub - Total</b>	<u>318.0</u>	<u>(1,003.0)</u>	<u>1,321.0</u>
<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	MMWEC Flush Inc./ (Exp.)	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>
<u>161.0</u>	<u>(76.5)</u>	<u>237.5</u>	<b>Net Income/(Loss)</b>	<u>318.0</u>	<u>(1,003.0)</u>	<u>1,321.0</u>

**Marblehead Municipal  
Light Department  
Operating Statement  
MAY 2023**

Current Month			(000's)	Year To Date		
Actual	Budget	Variance	Item	Actual	Budget	Variance
<u>6.5</u>	<u>6.8</u>	<u>(0.3)</u>	KWH Sales-Milions	<u>38.6</u>	<u>40.7</u>	<u>(2.1)</u>
1,553.8	1,570.5	(16.7)	Sales Revenue	9,096.8	9,399.0	(302.2)
<u>657.7</u>	<u>888.0</u>	<u>(230.3)</u>	Power costs	<u>5,528.7</u>	<u>6,943.0</u>	<u>(1,414.3)</u>
<u>896.1</u>	<u>682.5</u>	<u>213.6</u>	<b>Net</b>	<u>3,568.1</u>	<u>2,456.0</u>	<u>1,112.1</u>
<b>Operating Costs</b>						
143.0	186.0	(43.0)	Payroll	805.0	977.0	(172.0)
178.0	175.6	0.4	Depreciation	878.0	878.3	(0.3)
46.0	52.0	(6.0)	Benefits	239.0	260.0	(21.0)
25.0	25.0	0.0	OPEB	125.0	125.0	0.0
68.0	68.0	0.0	Pensions	340.0	340.0	0.0
9.0	64.5	(55.5)	Maint. Supplies	123.0	322.5	(199.5)
26.0	23.0	3.0	Office Supplies	102.0	115.0	(13.0)
14.0	21.0	(7.0)	Outside Services	72.0	105.0	(33.0)
0.0	2.5	(2.5)	Fuel	3.0	12.5	(9.5)
4.0	5.0	(1.0)	Insurance	28.0	25.0	3.0
3.0	3.0	0.0	Bad Debts	15.0	15.0	0.0
20.0	25.0	(5.0)	All Other	94.0	125.0	(31.0)
<u>35.0</u>	<u>35.6</u>	<u>(0.6)</u>	Bonds Payable Interest	<u>178.0</u>	<u>178.3</u>	<u>(0.3)</u>
<u>569.0</u>	<u>686.2</u>	<u>(117.2)</u>	<b>Total Operat. Costs</b>	<u>3,902.0</u>	<u>3,478.6</u>	<u>(423.4)</u>
327.1	(3.7)	330.8	<b>Operating Income</b>	566.1	(1,022.6)	1,588.7
<u>33.0</u>	<u>4.0</u>	<u>29.0</u>	Int.Inc./(Exp.)	<u>112.0</u>	<u>20.0</u>	<u>92.0</u>
<u>360.1</u>	<u>0.3</u>	<u>359.8</u>	<b>Sub - Total</b>	<u>678.1</u>	<u>(1,002.6)</u>	<u>1,680.7</u>
<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	MMWEC Flush Inc./(Exp.)	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>
<u>360.1</u>	<u>0.3</u>	<u>359.8</u>	<b>Net Income/(Loss)</b>	<u>678.1</u>	<u>(1,002.6)</u>	<u>1,680.7</u>





## Project 2023 (Seabrook Nuclear PPA)

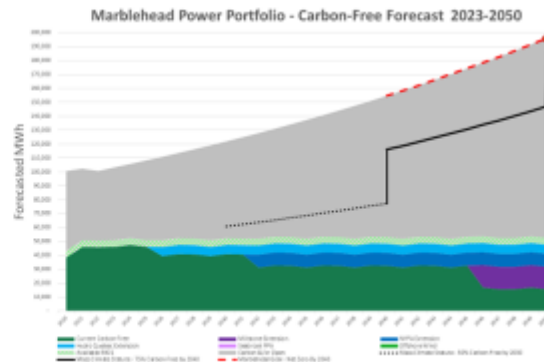
- Marblehead share is 3 MW firm, Around The Clock, starting in 2028 to 2049. (an increase from 2 MW earlier)
- Pricing is very attractive vs other carbon-free options under consideration and includes environmental attributes. (Exact pricing to remain confidential for now.)
- Pricing is 3 MW firm...if Seabrook can't generate, NextEra is obligated to supply energy and environmental attributes from elsewhere.
- We will receive 26,280 MWh/year...equal to 25% of our planned 2023 wholesale power purchases.
- PPA docs sent out June 22 for signing by June 31.

# MMLD Power Portfolio

June 27, 2023

## Power Portfolio: April 2023 Situation

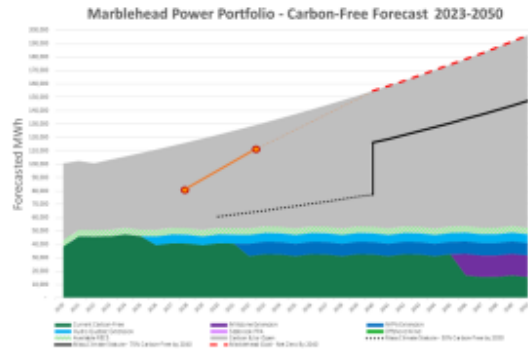
- Power need forecast to grow 2.4% / Yr. (ISO-NE CELT report 2023)
- 2021 State Law target, non-carbon emitting power:
  - 50% by 2030; 75% by 2040
- 2023 Marblehead target
  - Net-Zero by 2040



June 27, 2023 Light Commission Meeting

# Power Portfolio: May 2023 Situation

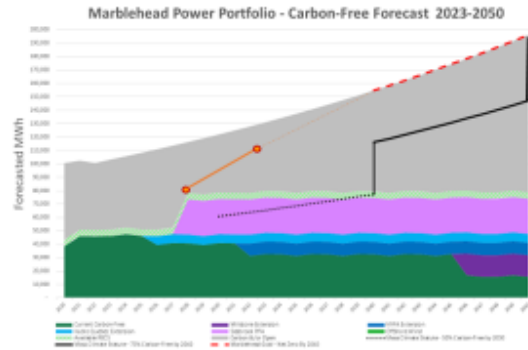
- Power need forecast to grow 2.4% / Yr. (ISO-NE CELT report 2023)
- 2021 State Law target, non-carbon emitting power:
  - 50% by 2030; 75% by 2040
- 2023 Marblehead target
  - Net-Zero by 2040
- MMLD carbon-free targets
  - 70% by 2028
  - 85% by 2033



June 27, 2023 Light Commission Meeting

# Power Portfolio: June 2023 Situation

- Power need forecast to grow 2.4% / Yr. (ISO-NE CELT report 2023)
- 2021 State Law target, non-carbon emitting power:
  - 50% by 2030; 75% by 2040
- 2023 Marblehead target
  - Net-Zero by 2040
- MMLD carbon-free targets
  - 70% by 2028
  - 85% by 2033
- Project 2023A PPA
  - 3 MW carbon-free power supply agreement
  - Reduces MMLD's cost of energy by 12%



June 27, 2023 Light Commission Meeting

## MMLD Distribution System Improvement Priorities – June 1, 2023

### v2 Draft for Internal Discussion

1. Operation Timber
  - Contract Osmose Utility Services Inc. to evaluate ~4,200 wood utility poles in Marblehead (MMLD and Verizon poles – separate contracts)
  - Record all results in ArcGIS DB
  - Schedule MMLD crews to do street-by-street replacement work, based on pole condition evaluations
  
2. Operation Clean Sweep
  - Simultaneous with Operation Timber, field evaluate capacity and condition of all conductor wire, transformers, and circuit tie points. Make appropriate edits to ArcGIS and EcoOne.
  - Develop a program with the Town to remove wire no longer in use, including communications wires and old Mhd Fire Dept fire alarm wires.
  
3. Operation Keystone
  - Separately evaluate the condition of all poles from Railyard Station in Salem to Village 13
  - MMLD line crew or contract repairs or replacement work for all issues identified, minimizing down time.
  
4. Operation Double-Take
  - Inventory all double poles in Mhd (location and photos) in Marblehead, and record in ArcGIS
  - Outreach to Verizon and Comcast
  - Share updates with Town
  
5. Operation Wild West
  - Record all backlot poles in ArcGIS
  - Cross-reference with Osmose pole-condition assessment
  - Determine feasibility of getting a NERAC grant to purchase back-lot digger to share with other participating NERAC-based MLDs in Northeast Mass
  
6. Operation Lower Deck (Foster St) and
  - Written outreach to all customers in areas served by old underground service
  - Determine willingness of customers to pay the incremental cost of installing a new underground service, versus a new OH service
  - Offer on-bill financing of the incremental UG cost, assuming tax-free MMWEC bond payment of the incremental project costs
  - Coordinate with communications companies servicing customers in the impacted areas

7. Operation Lower Deck – Crowninshield, Davenport, Davis, and Eustis Roads
8. Operation Transformation
  - Analyze recent distribution transformer load data, transformer age and condition.
  - Anticipate load increases to prioritize transformer replacement plans:
    - i. Review Mhd Building Dept. permits for significant changes to customer electric load: EV Charger, Solar PV, air source heat pump (ASHP), customer battery storage and to better anticipate transformer level load growth.
    - ii. Identify MMLD role(s) in promoting and integrating Vehicle-to-Grid (VTG) connected EVs
  - Establish MMLD residential TOU EV charger policy on requesting/requiring customer registration in a Next Zero/Connected Homes-like program.
9. Operation Fuel Pump
  - Formalize and publicize MMLD-customer EV charging program – confirm Fed and State incentives for the design, development, installation, and operation of public and customer/private EV charging.
10. Operation Peak Shave
  - Provide 15 KVA electric service to an agreed-to location at the site of the Battery Electric Storage System to be installed and maintained by DeLorean.
11. Operation Sunrise
  - Determine MMLD line crew and substation personnel roles, responsibilities and required training for solar PV system maintenance on Mhd schools and other public buildings
  - Participate in the design, installation, and training of emergency response plans
12. Operation Battery Pack
  - Determine MMLD line crew and substation personnel roles in the ongoing monitoring and maintenance of MMLD and customer battery installations.
  - Determine line crew and substation personnel roles in the development of emergency response plans
13. Operation Backbone
  - Replace 1304 line from Village 13 substation to Beacon substation
14. Operation Close the Book - on Open Wire
  - 3-Phase: Bradley Road
  - Jersey St
  - Dodge Road
  - Gregory St
  - Front St to Circle St

15. Operation Outdoors

- Replace and relocate the JCC transformer to a new outdoor location

16. Operation Switch - Replace G&W switchgear at the Beacon substation

17. Operation Clear Talk - Analyze EcoOne Data communications system in support of higher peak demand and TOU data collection needs (prioritize replacing Econet system components)

18. Assess and expand town-wide fiber optics network - as part of a Town-wide effort

19. Improve Substation site security – add security cameras & lighting

20. Village 13 upgrade project-

- Relocate overhead supply lines within substation footprint to new location
- Pole Yard relocation
  - i. Clifton substation area
  - ii. Beacon substation

21. Operation Welcome - New residential service -Hoods Lane/Intrepid Circle area– Pond Circuit ~40 units

- Specify transformer needs based on load analysis
- Locate, order, and install a new distribution transformer

22. Operation Welcome - New residential service– Vinan Square - Tedesco circuit ~ 120 units

- Specify transformer needs based on load analysis
- Locate, order, and install a new distribution transformer

**MMLD Distribution System Improvement Priorities: Timeline**

Initiative / Operation	2023H2			2024H1			2024H2			2025H1	
	Priority	Responsibility	Effort	Priority	Responsibility	Effort	Priority	Responsibility	Effort	Priority	Responsibility
Operation Timber	X	Osborne & MMLD									
Operation Clean Sweep	X	MMLD									
Operation Keystone	X	Contractor									
Operation Double-Take							X	MMLD			
Operation Wild West	X										
Operation Lower Deck Foster St				X	UG Contractor & MMLD				X		
Operation Lower Deck Crownshield/Dav/Davis							X	IG Contractor & MMLD			
Operation Transformation				X	MMLD						
Operation Fuel Pump				X	MMLD						
Operation Peak Shave				X	MMLD						
Operation Sunrise							X	MMLD			
Operation Battery Pack							X	MMLD			
Operation Backbone	X	MMLD									
Op. Close the Book on Open Wire	X	MMLD									
Op Outdoors				X	MMLD						
Op Switch										X	MMLD
Op Clear Talk				X	MMLD						
Op Fiber Run				X	Vendor & MMLD						
Op Substation Security				X	Contractor & MMLD						
Op Village 13	X	Vendors & MMLD		X	Contractor & MMLD						
Op Welcome Hoods Lane/Intrepid Circle							X	MMLD			
Op Welcome Vinan Square										X	MMLD

# MMLD Infrastructure needs

June 27, 2023

By 2048, most of the distribution system will have been replaced.  
 Assumption: Parts of the system are obsolete, the rest will be obsolete in 25 years.

Item	Numbers in Mbhd	Unit cost (\$)	% that will need upgrading by 2048	Total (\$ 000)
Meters	10500	400	100%	4,200
Poles	4200	800	75%	2,520
Transformers larger than 50 kVA	522	3312	90%	1,557
Pole transformers 50 kVA	480	3312	90%	1,431
Pole transformers 37.5 kVA	500	3130	90%	1,409
Pole transformers 25 kVA	50	2850	90%	128
13.8 kV line (mile)	50 ?	100000	75%	3,750
Substations	6	5000000	83%	25,000
Second 23kV line	10	1000000	100%	10,000
<b>Total</b>				<b>49,994</b>
Grants				0
Net				49,994
<b>Net per year</b>				<b>2,000</b>

Caution!! Cost estimates are not MMLD figures!!

List incomplete!!

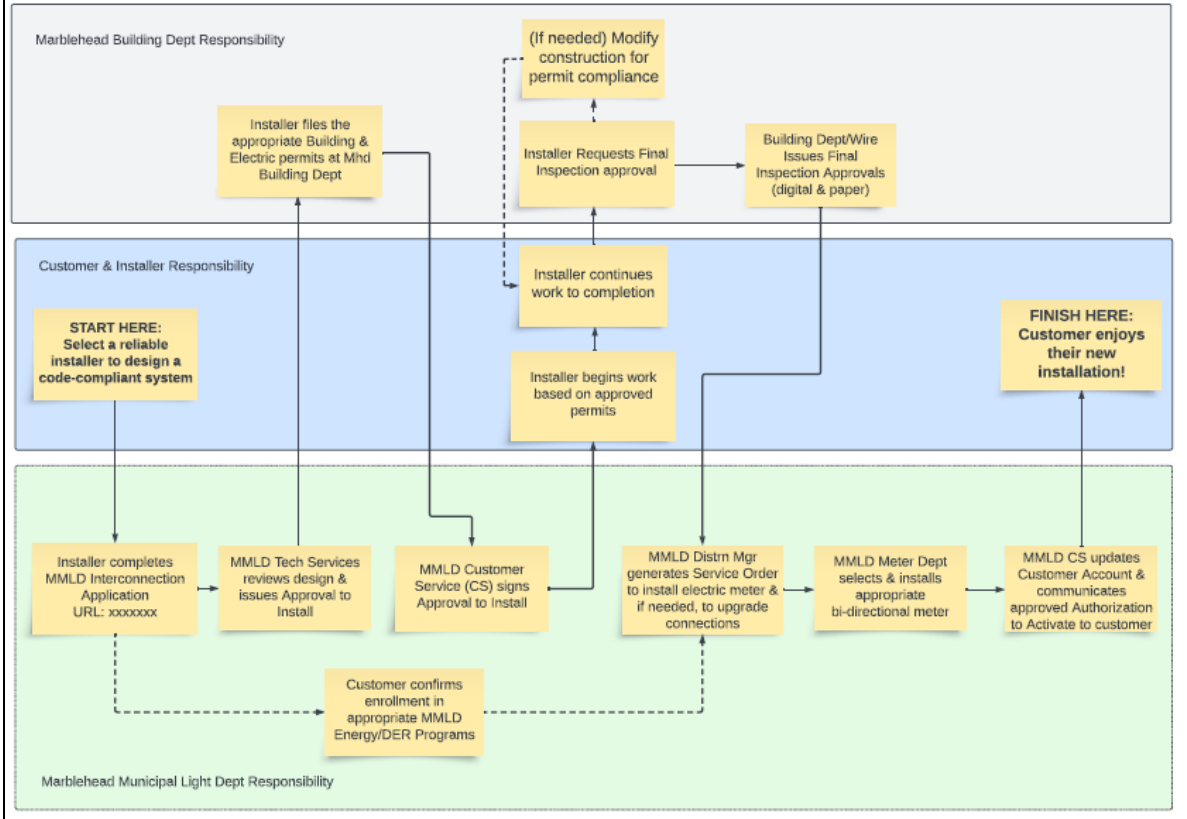
June 27, 2023



## Solar on Schools

- Solect visited Mhd again June 15... to site batteries at schools
- Updated pro forma financials for solar plus battery and PPA option are in process now

**Marblehead Permitting Process for an *Interconnected* Distributed Energy Resource (DER): Solar PV Array, Battery Electric Storage System, or Both**  
**DRAFT V4 FOR INTERNAL DEPT DISCUSSION ONLY JUNE 23, 2023**



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