

# Light Commission September 27, 2022 meeting minutes

To: Light Commission: Commissioners  
Light Department: J. Kowalik, General Manager, M. Barrett, Business Manager

From: Jean-Jacques Yarmoff, Secretary

Date: October 23, 2022

Re: Commission Meeting September 27, 2022

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A quorum being present, Light Commission Chair Mike Hull opened the meeting at 4:30 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: Bill Bullock, MMWEC; Jason Gilliland, Marblehead Fire Department Chief.

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

**Vote #2022-33** Motion to approve minutes moved by Commissioner Wolf and seconded by Commissioner Yarmoff. Four in favor, Smith abstained.

## **Presentation of Battery Joint Action Project**

Bill Bullock presented the results of MMWEC's solicitation of developers of Utility Scale Battery Storage projects, who submitted bids for projects with 14 MLPs. Slides used are reproduced from page 4 of the minutes. Due diligence and site visits took place in July, bids were submitted in August, three finalists submitted revised bids. The bid proposed by Delorean is the most favorable, with the company sharing more than half of the financial benefits with the MLPs on average. The IRA brings substantial economic benefits to storage projects. For Marblehead's MMLD, the NPV estimated over 20 years is positive \$8M. MMLD would not have to put down any capital for this project. Project would include decommissioning of the battery after 20 years, with an option for MMLD to buy the asset at the residual value at that time. MMWEC's recommendation is to move ahead with Delorean proposal, and to start contract discussion after buy-in from each of the MLPs participating. The proposed contract structure would be a Master Agreement between MMWEC and the developer with common terms for each MLD, who would then introduce specific terms into site specific license agreements. Dispatching would be done by Delorean. Mode of dispatch, arbitrages, would need to be discussed by the MLPs and memorialized in the site specific agreements.

## **Residential Batteries: MMWEC Control and Incentives programs.**

MMWEC's Connected Homes program allows dispatch of Generac and Sonnen batteries. In addition to the 30% investment tax credit customers can claim with IRA, MMWEC is putting in place an incentive and outreach program, as there is value for the MLPs to be able to have batteries behind customer's meters that can be dispatched during peak events. The financial incentives are likely to be \$200 per kw upfront,

plus \$15/month up for participating (allowing dispatch) during peak events. Customers can override participation in a particular event, but in that case, will forfeit the incentive payment for the month.

### **Residential Batteries: safety perspective from the Fire Department**

While there are many benefits to batteries, Marblehead Fire Department Chief Jason Gilliland also encouraged the Light Commission to consider the risks of residential batteries from the Fire Department's perspective. Batteries can be subject to thermal runaways, and when they burn they can emit toxic gases. Li-ion batteries fires, when they occur, are very hard to put out. The regulations are still evolving and the fire code, the building code and the electrical code all address installation of battery storage systems. See below page 8 and 9, Chief Gilliland's description of concerns.

As next step, the recommendation is to set up a taskforce composed of Fire Department Chief, the Light Department, the Building Inspector, and the Wiring Inspector to come up with a process for approval that takes into account concerns of all parties, as was done for the safe installation of solar panels.

### **General Manager updates**

Slides presented are shown from page 6, below.

- With regards to the Village 13 substation replacement, the switchgear contract discussions are progressing, and will be signed soon. (Post meeting note, the contract has been finalized on Oct. 6.)
- MMLD sent two line crew members and a truck to Florida as part of the response to hurricane Ian.
- Tree trimming program is underway with Mayer Tree Services.
- MMLD and the Town of Marblehead have received a CZM grant for \$523K for resiliency and public access improvements to the harbor front.
- MMLD is a part owner of the 6.9 MW Ludlow solar facility, the largest in the state. Dedication of the facility, named after Master Sergeant Alexander Cotton will take place on October 17. The facility is expected to start production at the beginning of 2023.

### **Financial / Rates updates**

Given the increase in the wholesale energy price (20% of our portfolio), caused by natural gas price increases, year-end expenses are on track to exceed revenues by \$778K, in spite of the previous increases in the PPA charge (currently at 0.056 \$/KWh). This is caused by the war in Europe; the stress on the international LNG markets is going to be a long term issue. In the short term, as by law we cannot have a negative result at the end of the year, we need to increase the PPA charge by an additional \$0.037 to close the gap. This means that the average residential customer bill will increase by \$22.31 per month.

From March 2018 to Feb 2022, the increase in energy cost was limited to 2%.

From March 2022 to Oct 2022, the increase in energy cost is 27%.

A compounding factor is that we also have to pay a "reliability-must-run" charge related to the Everett Gas terminal, as all other load-serving entities. This unexpected charge started in July at \$11K, and went up to \$47K in August. The evolution of this charge depends on ISO-NE negotiations with Exelon.

A question on capital expenses led to a discussion of the data network that MMLD maintains. A list of capital projects to be undertaken will be reviewed at a further meeting.

### **Strategy Working Group update**

Commissioner Yarmoff presented a proposal to refocus the Strategy Working Group of the Commission: slides presented are enclosed from page 10 below. We have many major projects pending and limited bandwidth. We need to prioritize the major initiatives of MMLD. New constraints, such as Massachusetts HR5060 signed into law by Gov. Baker on August 11, 2022, will significantly increase the electric load that MMLD will have to provide in less than 10 years. This will also make it more difficult to meet the targets of the 2021 law setting limits on the emissions of MMLD (50% by 2030). The various projects need to be prioritized and their respective impact and urgency well understood.

The Strategy Working group will meet again on October 11 and on subsequent occasions. It will report back at the following board meeting. Two commissioners, some members of MMLD and some members of the community are anticipated to participate in the SWG meetings.

### **Sustainability Working Group update**

The General Manager presented the job description for the sustainability manager. Many of the initiatives contemplated by MMLD can benefit from grants or tax incentives available in the IRA or in other state and federal initiatives. The individual would provide substantial benefits for MMLD and “pay for him/herself”. Other needs of MMLD must also be considered and the wider financial impact understood: these needs include engineering staff hire and other potential backfills. While hiring staff is the General Manager’s prerogative (per MGL Chap 164), there is broad agreement within the board that additional position(s) would be welcome additions to the staff of MMLD.

### **Other business**

**Department Goals.** Commissioner Wolf distributed a proposal for the timing of the department’s goals, attached page 13 below, which will be reviewed at the next board meeting.

**General Glover Restaurant re-development.** The supply of electricity to this new development could be done by MMLD, or not, as the situation evolves. There are legal issues related to Chapter 164 that need to be well understood.

The **proposed Executive Session** will be replaced by individual discussions with the General Manager as appropriate, and will be rescheduled for a board discussion if necessary.

The agenda for the meeting having been exhausted, a motion was made to adjourn and adopted unanimously at 7:00 pm.

# Additional documents and slides shown during Light Commission Meeting 9/27

## MMWEC presentation of Utility Scale Battery Project

### Behind the Meter Battery Joint Action Project

September 27, 2022



## Process to Date

- Collected initial responses from 9 developers for long term contract and 2 equipment suppliers for MLP ownership
- Selected top three responses to enter second and final round
- Due diligence – July 2022
  - Visited 14 MLPs & 18 Sites
- Revised submittals – August 2022
- Inflation Reduction Act Passes
- Presenting results / recommendation



## RFI Finalists



- Have 3 operating projects in ISO-NE.
- Local presence



- Recent Project with Holyoke
- No OEM given
- Several large scale projects (not in ISO-NE)



- Project underway in Groton
- Best Value
- Highest Sharing
- Locked in supply chain

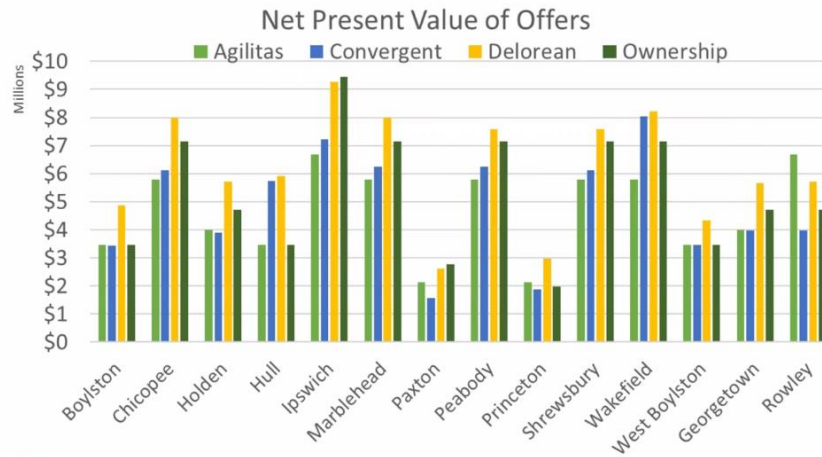


## Second Round Results

	Agilitas	Convergent	Delorean
Round 1 %Savings	22%	33%	40.4%
Round 2 %Savings	40%	35.9%	51.2%
Increase	82%	9%	27%
Battery	Powin Centipede	??	Trina Storage Elementa
COD	Oct 2023	May 2024	Phase 1 – Oct 2023 Phase 2 – Mar 2024 Phase 3 – Jun 2024
Layouts	No	Yes	Yes
Bulk Discount	40% for all if at least 30 MW	3% for 160 MWh 2% for 110 MWh 1% for 60 MWh	No minimum

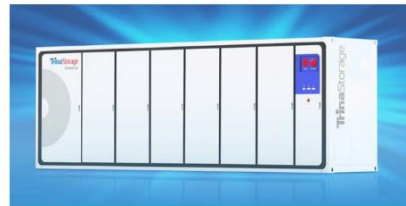


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4

## DELORAN POWER



5



6

## Next Steps

- Our recommendation – Delorean
- Provide details for each MLP
- Get buy in to proceed
- Start contract negotiation
  - Sleeved master agreement / common terms with MMWEC
  - Site specific license agreements with MLPs - can be added to the agreement as you decide



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## General Manager Business Updates



### General Manager quick updates

- Utility tree trimming program proceeding– Mayer Tree Service
- Switchgear Contract – Myers Controlled Power
- NEPPA/MMLD response to FL hurricane Ian
- APPA publication – *Electric Utility Basics, 4<sup>th</sup> edition* available for Board members
- MMLD & Town awarded CZM grant for \$523K – Shipyard harborfront resiliency seawall designs & public access improvements



## MMWEC/MMLD Solar PV Array dedication



- October 17<sup>th</sup> @ 10:30 am -
- The largest single solar field in Mass
- The largest municipally-owned solar project in Mass
- A 6.9 MW AC array
- Named in honor of Master Sergeant Alexander Cotton
- On the MMWEC campus Ludlow, Mass



## 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 “day ahead” market, powered by natural gas, representing 20% of our portfolio.
- To close the gap we need to increase the PPA in October by \$0.0337...average residential bill increase of 22.31
- Our operating cash position remains solid - \$5.4 million



## Residential Rate Changes - Recent History via Power Cost Adjustments

	Mar-18	Feb-20	Mar-22	Aug-22	Oct-22
MMLD residential rate	\$0.1425	\$0.1425	\$0.1425	\$0.1425	\$0.1425
PPA (wholesale power cost adjustment)	\$0.0270	\$0.0310	\$0.0410	\$0.0560	\$0.0897
Total energy cost (per kwh)	\$0.1695	\$0.1735	\$0.1835	\$0.1985	\$0.2322
Increase from Mar 2018 to Feb 2020					2%
Increase from Mar 2022 to Oct 2022					27%

## Battery Energy Storage Systems: Fire Department safety considerations

FW: My Concerns with BESS

Jason R. Gilliland <gillilandj@marblehead.org>

Tue 8/30/2022 2:57 PM

To: Michael Hull <mhull@mhdd.com>



Jason R. Gilliland  
Chief of Department  
Marblehead Fire Department  
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Office: 781-639-3427  
Cell: 781-983-3580



Good afternoon, Michael:

Below are my initial concerns with Battery energy storage systems that I want to share with your board. Battery energy storage systems are a fairly new technology, and though the fire department has had some cursory training related to BESS, like most other fire departments across the country, our experience with lithium-ion battery fires is very limited. What we do know, from our limited experience, is BESS behave differently than typical fires, and pose a unique hazards to firefighters

The main concern I have is that the two dominant lithium battery types used in residential applications, lithium nickel manganese cobalt oxide (NMC) and lithium iron phosphate (LFP), can experience thermal runaway, causing them to release very hot flammable, toxic gases. The hot flammable gases can result in an explosion, or at best, a very difficult fire to extinguish.

Although the fire service routinely responds to explosive scenarios, such as those associated with natural gas leaks, standard operating procedures do not yet exist for scenarios like a battery energy storage system for which there is no way to cut off the gas supply. This in turn, potentially creating a significant hazard to firefighters and civilians alike.

Form past incidence involving BESS, that have been shared by other fire departments, we know that all BESS contain sizable quantities of hazardous materials. In the event of an emergency with a BESS, a toxic environment may be created that is not visible. Metering of the environment by hazardous materials technicians is necessary as is the usage of full personal protective equipment. This would necessitate the activation of the state hazmat team. It is important to understand that currently, massive quantities of water over an extended period is the only established means of preventing continuous thermal runaway in a lithium-ion battery, that being the case, provisions for controlling hazardous toxic chemical runoff would need to be implemented at every fire scene involving BESS.

In smaller residential settings, a lithium-ion battery module may undergo thermal runaway as a result of exposure to a heat source unrelated to the battery. For example, a battery module located in or near a garage is exposed to a car fire can liberate toxic and flammable gases and present extinguishment problems. BESS failures can occur for a variety of reasons including but not limited to: 1. Thermal abuse (external temperatures) 2. Physical/mechanical damage 3. Electrical abuse (over-charging or repeated excessive charging rates) 4. Environmental impacts (electrical surge, lighting, etc.) 5. Internal faults within the battery cell 6. Other electrical faults or system failures. In addition, stranded energy or



remaining energy is an important factor regarding a BESS incident. Residual energy within a damaged lithium-ion battery or BESS presents a significant fire, shock, and/or explosion hazard to firefighters. Additionally, lithium-ion batteries can spontaneously reignite hours or even days later after a fire event if cells go into thermal runaway, making decommissioning, deconstructing and storing more complicated. At a minimum, I would recommend the following.

- Lithium-ion battery BESS should incorporate gas monitoring that can be accessed remotely.
- Lithium-ion battery BESS should incorporate a communications system to help ensure remote access to the battery management system, sensors and fire alarm control panel remains uninterrupted.
- Owners and operators of BESS should develop emergency operations plan in conjunction with the fire department and the authority having jurisdiction and hold a comprehensive understanding of the hazards associated with lithium-ion battery technology.
- Signage that identifies the contents of a BESS should be required on all BESS installations to alert firefighters to the potential hazards associated with the installation.
- Lithium-ion battery BESS should incorporate adequate explosion prevention protection as required in National Fire Protection Association (NFPA) 855 or International Fire Code Chapter 12, where applicable, in coordination with the emergency operations plan.
- New lithium-ion battery BESS should be built in accordance with NFPA 855, the most current standards available for safety, and the Fire Department and the Electric Light Department should jointly be calling on Town Meeting to mandate adoption of NFPA 855 as part of the By-laws of Marblehead

Regards,  
Jason



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# Strategy Working Group

9/27 update

## Long list of possible actions

Action 1

...

Action 6: Rebuild Village 13

Action 7: Deferred maintenance

...

Action 13: Evaluate load with maximum electrification

...

Action 16: Utility scale battery

Action 17: Implement Time of Use

Action 24: Community solar

...

Action 33

## List of actions: possible impact

Action 1

...

Action 6: Rebuild Village 13

Action 7: Deferred maintenance

...

Action 13: Evaluate load with maximum electrification

...

Action 16: Utility scale battery

Action 17: Implement Time of Use

Action 24: Community solar

...

Action 33

Investment needed:



Major



Minor



NA

Good for:



Reliability



Rates



Emissions

## List of actions: possible impact

Action 1

...

Action 6: Rebuild Village 13

Action 7: Deferred maintenance

...

Action 13: Evaluate load with maximum electrification

...

Action 16: Utility scale battery

Action 17: Implement Time of Use

Action 24: Community solar

...

Action 33

Investment needed:



Good for:

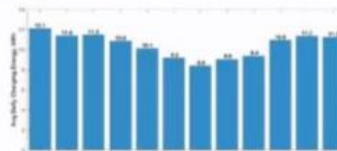


## Action 11: Forecast load with maximal electrification

- **Ban on Non-Zero emission car sales from January 2035 in Massachusetts**
  - Part of H5060, signed by Gov. Baker August 11, 2022
  - Conditioned on California enacting similar restrictions
  - CA Air Resources Board (CA ARB) regulations adopted August 25, 2022.
  - 17 states and DC follow CA Air Resource Board regulations, MA codified it into MA law
- **Car Industry reactions**
  - General Motors: "committed to emission reductions that are aligned with the CA ARB's targets"
  - Ford: "sales curve is aggressive, and cooperative partnerships between vehicle manufacturers and Government will be required to achieve success"
  - Tesla: "The proposal is both achievable and paves the way for CA to lead in electrifying vehicle sector"
- **In the rest of the world**
  - EU adopted « Fit for 55 » on July 14, 2022. 55% reduction of GHG from cars by 2030, 100% by 2035
  - China: pledged to have 80% of its cars be electric by 2035

## Implications for Actions 11, 12 and 13

- **Ban on Non-Zero emission car sales from January 2035.**
- **Anticipate 2000 new EVs every year in Marblehead by 2033, in ten years**
  - 2,000 cars means additional load of 7,618 MWh
  - every year, from 2033 and probably before
  - equivalent to 7 % of our existing load
  - added every year



Charge Point load data  
3,809 kWh /year per EV

- **What distribution system do we need?**
- **How many charging stations?**
- **How much will it cost?**

## Legal Constraints on MMLD

- 2021 Law regulating MMLD emissions  
Emission targets from 2030
- 2022 H5060: « Act driving clean energy and off-shore wind »  
Will lead to an increase in load (up to 70% increase?)
- DOER new building code regulations, adopted before end of 2022  
Will lead to an increase in load

## Long list of possible actions

- Action 1
- ...
- Action 6: Rebuild Village 13
- Action 7: Deferred maintenance
- ...
- Action 13: ... ...rification
- ...
- A ... ... of Use
- Act ... ...unity solar
- ...
- Action 33

**We need to prioritize  
and  
We need a multi-year plan**

## Strategy Working Group of the Light Commission

- Build policy framework for MMLD
- Launched in 2021, will report results to Commission
- Composition
  - Two Commissioners
  - Two or more members of MMLD
  - 3-4 Members of the community
    - We will reach out to experienced individuals
    - Volunteers welcomed
    - Group's work products to be reviewed by the whole Light Commission
- Proposed next meeting: October 11
  - Maximal load evaluation: hypotheses over next 20 years
  - Framework for group work: plan over the next 6 months

## Proposal regarding Department Goal Setting.

### MEMO

To: MMLD Commissioners, Joe Kowalik, Matt Barrett

From: Commissioner Wolf

Re: Timeframe for MMLD Goal-Setting

**Proposal:** Timing of annual Department goal-setting will coincide with fiscal year (calendar year).

### Background:

- The Commission and General Manager have not formally defined department goals and objectives since the GMs new contract went into effect, April 2021.
- Goals and objectives for the current contract year have been proposed separately by the GM and Commission, but have not been agreed to or adopted as of this meeting.
- The General Manager's contract reads:
  - A. The Commission shall review and evaluate the General Manager's performance on an annual basis. Said review and evaluation shall be based on the goals and objectives developed jointly by the Commission and the General Manager as set forth in subsection B below. The Commission shall provide the General Manager with a composite written statement of the collective evaluation findings of Commission Members and shall provide an adequate opportunity for the General Manager to discuss his evaluation with the Commission ...
  - B. At the beginning of each contract year, the Commission and the General Manager shall meet to define the goals and objectives which they determine necessary for the proper operation of the MMLD and the attainment of the Commission's policy objectives, and shall further establish a general priority among those various goals and objectives, with said goals and objectives to be reduced to writing. Said goals and objectives shall generally be attainable within the time limits specified and within the annual operating and capital budgets and appropriations provided by the MMLD and the events that have occurred during the year.
- The Commission and General Manager need a process to set goals and priorities
- There now exists a comprehensive summary (authored by JJY) of near term goals proposed by both the Commission and the General Manager
- Goal-setting should be informed by recommendations from the Sustainability and Strategy committees
- This should be accomplished by the end of this calendar year so formal goals, with key performance indicators and reporting targets, can be adopted for FY 2023 and be aligned with the annual budget.