



HINGHAM MUNICIPAL LIGHTING PLANT

31 Bare Cove Park Drive
Hingham, MA 02043
(781) 749-0134 FAX (781) 749-1396
www.hmlp.com

General Manager

Thomas Morahan
tmorahan@hmlp.com

Board Members

Laura Burns, Chair
Michael Reive, Vice-Chair
Tyler Herrald, Secretary

REGULAR MEETING HINGHAM MUNICIPAL LIGHT BOARD

June 27, 2023
Zoom Meeting
<https://us02web.zoom.us/j/81774876304?>

Meeting Called to Order

A regular meeting of the Board of Commissioners of the Hingham Municipal Light Plant (HMLP) was called to order by the Board's Chair, Laura Burns, at approximately 7:32 am on Tuesday, June 27, 2023, via Zoom.

Present:

Board Members: Laura Burns, Chair
Michael Reive, Vice President
Tyler Herrald, Secretary

HMLP: Thomas Morahan, General Manager
Mark Fahey, Asst. General Manager
Joan Griffin - Business Manager
Stephen Girardi, Engineer
Ellen McElroy, Customer Service
Brianna Bennett, Sustainability Coordinator

Guests: Mark Beauchamp - UFS
Mike Johnson - UFS

Ms. Burns read the following disclaimer into the record:

This meeting is being held remotely as an alternative means of public access pursuant to Chapter 107 of the Act of 2022 and all other applicable laws temporarily amending certain provisions of the Open Meeting Law. You are hereby advised that this meeting and all communications during this meeting may be recorded by the Hingham Municipal Light Plant in accordance with the Open Meeting Law. If any participant wishes to record this meeting, please notify the chair at the start of the meeting in accordance with M.G.L. c. 30A, § 20(f) so that the chair may inform all other participants of said recording.

Ms. Burns asked if anyone other than HMLP wished to record the meeting. No one responded affirmatively

Ms. Burns was not able to review the minutes so we can approve them at the next meeting.

Time of Use Rate Discussion - UFS

Mr. Beauchamp stated that the purpose of the meeting is to go over the Time of Use (TOU) rate, implementation plan, and customer impacts based on current usage patterns.

Slide #1 Benefits of Time Differentiated Pricing

- Incentive for customers to use energy when it costs you less to purchase it so it lowers your peaks. This improves capacity factors so your infrastructure is being used more consistently and efficiently.
 - Lowers usage during peak demand hours
 - Increases usage during low-cost hours
 - EV
 - Heating/cooling
 - Tends to lower customers overall electric usage
 - Allows customers control over electric bill
 - Lowers Green House Gas Emissions

Mr. Reive asked if UFS is predicting that the amount of electricity used in Hingham will be fairly consistent. He stated that since he is seeing more electric vehicles and heat pumps, would that not increase the amount of electricity needed? Mr. Beauchamp said it may not be constant but the capacity may decrease and therefore, decrease the peak.

EVs are in two categories; residential and commercial. Residential EV customers will most likely begin charging at 7:00 pm, which is the peak so without Time of Use, that residential customers are not going to change their behaviors. The issue is that we need more control on the commercial side. Commercial charging stations are used from 6:00 am until 8:00 pm so utilities are installing batteries in EV stations to help shave the peak and they are putting in controls to throttle commercial EV stations. Instead of a commercial customer having a peak capacity of 400 kW the utility would drop it down to 200 kW so that they can still charge the vehicle; however, it will take longer. The Board/Utility would have to give the price incentive for the commercial customers to allow this to happen.

Slide #2 Utility Costs Compared with Utility Rates (this is not Hingham's rate)

Graph shows a utility charge of \$0.095/kWh. (flat rate). Reality is that at night it will cost \$0.06 so we would be overcharging the customer by \$0.035/kWh. In the daytime, it will cost us \$0.135/kWh so we are undercharging during that period. Businesses should not charge less than the marginal cost, regardless if it can be made up during a different time frame.

We need to send a price signal to customers so that we can bring down the peak. If the utility moves too fast there will be BIG TIME winners and losers. We need customers to get used to the price signal so they can more consistently change their behavior.

Mr. Beauchamp stated that we need to have a strategy of where we are today so that we can get to where we want to be tomorrow. He shared a list of items that can be purchased by customers to control consumption during peak times (ex: set back thermostats, air curtains). Mr. Herald asked that this comprehensive list of items be shared with HMLP so that they can be shared with our ratepayers.

Slide #3 Time of Use (TOU)

- Cost Allocation
 - Oct-May
 - Energy
 - Applicable Transmission
 - June-Sept
 - Energy
 - Applicable Transmission
 - Capacity

UFS looked at market prices of electricity in your market to identify how much on average it costs to purchase electricity to handle the peak. There are two seasons (Oct-May and June-Sept). Summer is when you have to purchase enough capacity to handle the peak demands. That is why capacity is listed in the June-Sept period as well as transmission cost and market price of energy.

Slide #4 TOU Identified Time Periods (18:50)

After usage was analyzed by month, then it was analyzed by time period to see where costs are occurring. The objective is to try to send a price signal to customers to move away from using electricity during those hours. In Winter, peak is anytime throughout the day (8:00am-8:00pm) for Monday-Friday but weekends and holidays are off peak. In the Summer, the on-peak is 1pm-7pm so the shortened period will create a stronger price signal to move away from using electricity at that time.

A few of the negatives are:

- 8am-8pm in the winter will lower the price differential so the price signal is not as strong.
- For residential and small commercial it will make it more difficult for them to switch their behavior

Mr.Reive asked why capacity for winter heating between October and May is not an issue. Beauchamp responded that it could be a problem in the future. Mr. Beauchamp stated that the time periods should be static for the next few years and then when the peaks have flattened then the time periods may have to change. Mr. Beauchamp warned that if more solar is installed, it

will lower the capacity needed during the summer time periods, from a cost perspective. He also stated that any changes that are made must be implemented gradually.

Ms. Burns stated that the capacity charge is based on one hour during the summer so TOU will charge those that use the power at the peak, to be charged the most. Mr. Beauchamp stated that several other markets assign capacity differently.

Mr. Reive questioned Mr. Beauchamp on why he wants to move so slowly? Mr. Reive believes that homeowners and commercial entities will adapt to the change. Mr. Beauchamp responded that he has learned from experience and will not make the same mistake three times. On two (2) occasions the utilities made dramatic changes and it caused the utility issues. Mr. Beauchamp envisions three residential rates: (1) Standard (2) Full TOU rate (3) Opt-In TOU rate.

Mr. Beauchamp stated that the Board needs to decide how they want to implement these rates but first you must go through a pilot and test phase to make sure all of the equipment and programming is working correctly. If you opt for a TOU rate, you would have to look at the possibilities. An Opt-In, you should expect approximately 10-15% participation. An Opt-Out, you should expect approximately 90% participation but customers have the option go back to the regular tariff. A mandatory TOU you would have 100% participation. Even with that you will still have at least 2 rates - phased in TOU and full TOU. The full TOU will be most beneficial to EV customers.

Slide #5 Residential TOU Rate

TOU study identified the optimal rates:

- Monthly charge = \$10.86 and will full TOU Monthly charge = \$14.86
- Current rate = \$0.0823 kWh and TOU Winter On-Peak = \$0.1133 kWh
- Current rate = \$0.0823 kWh and TOU Winter Off-Peak = \$0.0551 kWh
- Current rate = \$0.0823 kWh and TOU Summer On-Peak = \$0.235 kWh (condensed time period)
- Current rate = \$0.0823 kWh and TOU Summer Off-Peak = \$0.0496 kWh
- Energy charge= \$0.0819 kWh and TOU would be the same at \$0.0819 kWh

This slide shows the rates over a period of five (5) phases. You can use all five phases or implement TOU in fewer phases. It is important that you understand the impact on the customers.

Ms. Burns stated that she learned about a Board in Massachusetts that has voted to change rates and they have an optional TOU rate that their customers buy into but they have decided to change the TOU rate to be mandatory in 3 months and the differential is 10 to 1. She predicts major problems with customers if this process is rushed. She would like to have an extensive customer education program for all customers to fully understand TOU and why we are going to TOU.

Ms. Burns would like a delineation and complete description of all charges listed - capacity, transmission, distribution, energy. She needs this information so that she can defend to someone questioning why HMLP moved to TOU rates. Ms. Burns is very confident with the UFS plan, but she just needs more information. Mr. Johnson and Mr. Beauchamp will provide any and all information that Ms. Burns needs.

Mr. Beauchamp explained that included in each of these (example Summer On-Peak):

- Market price of energy - which is the price to purchase the power
- Transmission costs that are paid to ISO New England
- Marginal capacity cost to purchase additional capacity
- Distribution component

Mr. Beauchamp stated that when they start a study, they look at marginal costs. Marginal cost is the cost to purchase the next kWh or kW of capacity. When they calculate the marginal cost it will not balance to the overall portfolio cost. There is an adjustment/balancing percentage that has to be made to balance the cost with the portfolio.

Mr. Herrald interprets this slide to be that TOU changes only come into play with capacity, transmission and distribution but energy charge does not change every hour of the day, it remains at \$0.0819 kWh. Mr. Beauchamp confirmed that Mr. Herrald's interpretation is correct.

Slide #6 Residential TOU Customer Analysis (by implementation)

Graph based on 190 customers to show the five phases of TOU and the percentage change that they will see on their bill. If HMLP went to full TOU, 7 of the 190 would see an increase over 10% the other 183 would see increases and decreases with the 10% bandwidth.

Mr. Beauchamp thinks that we should start with Phase 2 or 3. Ms. Burns would like to take it slow. Mr. Herrald is worried about customers who are not technologically savvy and cannot spend money on costly devices to monitor their energy use (ie. older customers and lower income). He does not think that we need to move too aggressively. Mr. Beauchamp stated that the research states that TOU has no impact on low income. He suggested that we could provide low-income customers with enabling devices, such as Smart Thermostats. Mr. Johnson will add the list of devices that make a household more efficient and he will add it to this PowerPoint.

Slide #7 Monthly Residential Sample Analysis

Graph shows if the jump was made to full TOU (phase 5).

It showed that all customers above 10% would have an increase of less than \$2.50 and that more customers will have their bills decreasing.

Mr. Beauchamp stated that technology is always changing and being developed. Mr. Morahan asked whether we would need AMI to bring this all to fruition, and Mr. Beauchamp responded in the affirmative. HMLP does not have AMI at this time. Ms. Burns wants to make sure that any device that we may think could help our customers, needs to be time tested and have a solid track

record of success. She believes that TOU is better way to assign cost to people who use more energy.

Mr. Reive suggested that the Home Energy Assessment could include smart devices. Ms. Burns disagrees because the Home Energy Assessments do not currently include these suggestions and programs.

Slide #8 Commercial TOU Rate

TOU study identified the optimal rates:

- Monthly charge = \$13 and will full TOU Monthly charge = \$17
- Current rate = \$0.0921 kWh and TOU Winter On-Peak = \$0.1216 kWh
- Current rate = \$0.0921 kWh and TOU Winter Off-Peak = \$0.0634 kWh
- Current rate = \$0.0921 kWh and TOU Summer On-Peak = \$0.2437 kWh (condensed time period)
- Current rate = \$0.0921 kWh and TOU Summer Off-Peak = \$0.0579 kWh
- Energy charge= \$0.0819 kWh and TOU would be the same at \$0.0819 kWh.

Ms. Burns wanted to know if the 6% increase is already included in these percentages. This needs to be clear when presented to customers.

Slide #9 Commercial TOU Customer Analysis by implementation)

Graph based on 190 customers to show the five phases of TOU and the percentage change that they will see on their bill. As an example, if you want to full TOU, 15 of the 190 customers would have a 10% increase in their bills.

Now Mr. Beauchamp is reconsidering his earlier idea on Residential to move to Phase 3 due to the 6% increase to rates beginning on July 1. He is now leaning toward going to Phase 1 with the 6% increase first and then moving to Phase 3. Ms. Burns would like to see the two scenarios on residential rates; (1) as of today and (2) with the proposed 6% increase in July 2023. Mr. Beauchamp wants to ensure that charts that state “current” are what is being charged today. Ms. Burns would like to to have more clarity. Mr. Johnson’s new slide will have a label of “Current” as well as “October 2023” so we are working from the beginning.

Mr. Morahan asked if we wanted to look at TOU this year, TOU Year 2 and TOU Year 3 with the 6%. Yes, Ms. Burns is in agreement that we need to review the numbers with the proposed 6% increase as of July 1, 2023 to make a decision.

UFS will come back with documentation in a more logical fashion.

Mr. Reive asked if HMLP could get a model in a spreadsheet where we could input the number of hours (peak) vs number of hours (off peak) so that we can calculate customer bills. Mr. Johnson stated that that would be an in-depth model to create and he would need more information on how to calculate a bill.

Solar Credit - UFS

Slide #10 Solar Rate

- Currently, solar systems whose design capacity is greater than 20kW (AC) receive a solar credit of 0.0527 kWh for excess generation. For solar system whose design capacity is equal to or less than 20kW (AC) the solar credit is 0.1014 kWh.
- Less than 20 kW
 - COS is \$0.114 kWh
 - 5Yr Average \$0.071 kWh, 3YR Average \$0.077 kWh
- 20 kW or greater
 - COS is \$0.09 kWh
 - 5Yr Average \$0.48 kWh, 3YR Average \$0.051 kWh

According to Mr. Johnson, the COS (Cost of Service) is what it costs in 2022. The COS is the value that solar is providing to HMLP (avoided cost is 11.4%). Ms. Burns stated that the avoided cost of larger arrays is \$0.09 kWh so that is why we want a lower rate for the larger arrays. Mr. Beauchamp stated that the reason that the avoided costs are lower for larger arrays is that generation of power can be intermittent and may not provide capacity at the exact time when HMLP needs it. It is also calculated more on avoided market cost, rather than avoided capacity cost to make it more consistent with laws passed in 2021 which stated that utilities have to offer avoided cost rates. Large generating units are intermittent and do not provide as much benefit. Some of these commercial installations are not “behind the meter” and he worries about arrays on the HMLP system with the primary intent of selling the power back to HMLP. He cautioned that this type of distributed generation can cause HMLP to lose money. The larger arrays are not producing the capacity when it is necessarily needed.

Ms. Burns proposed a solar credit which would be at the inverse of the TOU rate. The solar customer would get the amount of the distribution credit then only reimbursed for the off-peak rate. Mr. Beauchamp said that this would make sense because the solar customers will benefit with TOU, especially in the summer, they may be producing during the peak. Ms. Burns stated that this proposal does not offer a potential solar customer the calculation for a payback period, because it is not a steady hourly rate. Mr. Beauchamp stated that we would still have to charge the solar customer *UFS* for distribution, but it could be stripped down. Most of the solar would not be online during the capacity and transmission hour.

Ms. Burns reiterated that in a prior meeting Mr. Herrald would want to incentivize the solar program, but not with rates.

Mr. Johnson stated that the 3YR and 5 YR averages are significantly lower so solar customers may be upset by a lower rate. Currently, they get \$0.09 kWh but the analysis shows that they would get \$0.077 kWh or \$0.071 kWh. Mr. Herrald wants to ensure that last years numbers are not used because the costs were higher last year and we should be indexing more to an average, than an outlier. Mr. Beauchamp questioned whether HMLP would consider “grandfathering”

existing solar customers to stay on the current methodology and the newer ones go on the 5YR average.

Ms. Burns asked for confirmation that the avoided costs do NOT include capacity and transmission because it does not decrease the cost due to the fact that solar is not online during the peak hour. Mr. Herrald stated that he supported the TOU structure for solar customers as long as they are compensating HMLP and the grid. We have to ensure that the cost of managing the volatility and the intermittency that comes with solar is taken into account. There has to be an understanding of the risk and reward.

Mr. Reive stated that if there are 100 solar customers and there is capacity on the grid right now. How can we determine how many more solar customers we can handle before we have to upgrade the grid. An upgrade to the grid would be a substantial cost that needs to be understood. HMLP needs to consider that not only solar, but heat pumps, will increase the loading on our grid. HMLP will need to review the study that has already been done to ensure we are making an informed decision.

Mr. Beauchamp stated that the Power Cost Adjustment (PCA) is calculated by looking forward at the power costs and he believes it is more accurate than a rolling average. Ms. Burns stated that HMLP will remain calculating the PCA how they have been but also look at the rolling average as another tool in validating their methodology.

Next meeting will be on July 11, 2023 at 7:30 am.

Motion to adjourn the meeting.

Mr. Reive : “Aye”

Mr. Herrald: “Aye”

Ms. Burns: “Aye”

Meeting adjourned at 9:07 am