

# Light Commission December 19, 2023 meeting minutes

To: Light Commission: Commissioners  
Light Department: J. Kowalik, General Manager  
From: Jean-Jacques Yarmoff, Secretary  
Date: January 2, 2024  
Re: Commission Meeting December 19, 2023

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A quorum being present, Chair Wolf brought the meeting to order at 4:07 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, Wolf and Yarmoff participated in person.  
Light Department: General Manager, J. Kowalik; Business Manager, Matt Barrett; Manager of Technical Operations, Colin Coleman.

Marblehead Land Acknowledgment declaration was read by Commissioner Frechette.

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

**Vote #2023-47** Motion to approve the minutes of the 11/21 Commission public meeting was Moved by Commissioner Smith, seconded by Commissioner Frechette. **Unanimous.**

**Comments from the Public** Following yesterday's storm, Mary Stuart and Christine Nuccio of Damays Way sent a card red by Commissioner Hull to express their appreciation of the "efficient and quick job" MMLD's "linemen did yesterday cutting away a tree, disconnecting wiring, removing a broken telephone pole and installing a new one. We had electricity back within hours. ... You/we are fortunate to have such capable and efficient men working for our town."

## **Outstanding items**

**Dual meters / analogue meters retirement.** Rate filing has been sent to DPU. Notice will be published in the local newspapers this week and next. The document explaining the retirement of analogue meters is to be drafted, but measurement equipment to test has been received. The Department is moving ahead on all these items.

**Recruiting firm/new hires:** The General Manager signed a contract with the firm Stanton Chase for help recruiting for the Engineering project manager and the IT positions. Commissioner Frechette, who has a lot of experience, will work with the General Manager off line to assist with the process. The General Manager will make the final call on any hiring.

With regards to the third position, the General Manager will meet on Thursday with town officials who believe they have candidates: although he was ready to post the job description, it is possible that there is a pool of satisfactory candidates wanting to work for the town already. The position description has not changed significantly from a year ago: the General Manager will circulate the position description to the Commissioners.

**Duracell proposal and discussions:** have not moved forward since last meeting.

**Update on recent storm:** the General Manager commented that in spite of high winds, tree damage was not as severe in Marblehead as it could have been (see page 6): the tree trimming program has borne fruit. The storm has caused a lot of damage in New England, with more mutual aid requests yesterday than ever received, from Municipal plants in every state. Marblehead crews were working all day in Marblehead yesterday, but many requests came from Maine at end of day, requesting 20 linemen, crews with trucks and supervisor requested. Distribution Manager Greg Chane is leading a crew from Marblehead: they left on Tuesday morning and may well be working until Saturday in Maine.

### **Report of Manager of Technical Operations**

Colin Coleman, Manager of Technical Operations, presented the diverse activities of the Engineering and Technical Services team he leads: the slides are presented from page 7; the readers interested in the details of the multiple projects managed by the team are invited to listen to the [details](#) presented during the meeting.

In addition to the manager, the team is composed of:

- Jack Ravago, Senior Maintenance and Operations Specialist, responsible for substation maintenance, distribution system switching, and the operations of the Wilkins Plant;
- Didi Rubano, Lead Meter Technician, responsible for the **Advanced Metering Infrastructure (AMI)** which includes all meters and communication systems;
- Paul Surette, Maintenance and Operations Specialist, operator of the Wilkins Plant and in charge of its maintenance, as well as that of the MMLD fleet and the 80 Commercial Street facilities;
- Nate Kobialka, Advanced Electric Utility General Technician, a trainee in the team working on Substations, Distribution System switching and Wilkins Plant operator.

The team works on different types of projects. Some are

#### **MMLD initiated projects** which include

- large infrastructure projects: Village 13 substation upgrade, High Voltage lines upgrade (line 1304 replacement), as well as the evaluation of sites for utility scale energy storage systems;
- regular maintenance of systems: *e.g.* seasonal Capacitor Bank management (to control power quality), weekly safety checks of all substations;
- AMI system management, improvements and trouble-shooting; and
- unplanned emergency interventions when necessary (recently: Water and Sewer Department pumping station alarms and low voltage alert, setting up generator and troubleshooting underground service).

#### **Customer initiated projects** such as expanding power supply to large projects and many residential ones:

- industrial customer Blue Anchor Millworks, with tri-phase 300 kVA 277/480 V transformer installation;
- Large new residential projects at 80 Tioga Way with 48 residential units;
- Mariner Way with large 1MVA transformer, multiple pole relocation, CT installations and new wiring;
- Town Department of Public Works building at 100 Tower Way; or
- evaluating the impact of a 100 kW solar PV array at Temple Sinai.

#### **Substations Operations and Maintenance, Transformers**

Substation maintenance includes switchgear testing, replacing meters, changing breakers as needed. MMLD works with UPG, a substation maintenance company (that also periodically tests the aging Village 13 transformers). Every maintenance operation means careful switching, de-energizing to both allow intervention on de-energized systems while maintaining electric service to customers. Safety is paramount and needs constant attention reinforced by training.

Management of the inventory of transformers is important, as lead time for ordering is still very long.

#### **Wilkins Operation and Maintenance**

The Wilkins Plant was recently the subject of an unscheduled DEP (Departement of Environmental Protection) compliance inspection, which seems to have gone well. As MMLD operates the plant in the

Capacity market, ISO-NE checks the readiness to operate in cold weather conditions: the ISO-NE Winter Readiness Survey was submitted in December, and MMLD submits a monthly GADS report. When any situation causes an inability to run the Plant (which can be lack of appropriate staffing) an Outages Report is necessary, which take a substantial amount of work. Every year, a summer audit is also necessary.

MMLD has also taken the decision to participate in the new Inventoried Energy Program which is an ISO-NE incentive program to store more fuel on site, in order to be able to generate when called upon during prolonged cold spells. During a cold period defined by ISO-NE, MMLD will measure between 7 and 8 am the amount of fuel available at Wilkins and report to ISO-NE, which can calculate how long the various generators can run. MMLD participation brings in a monetary contribution of \$3,500 for each event, and about 10-12 events are expected to be called by ISO-NE during the winter.

#### **IT / communication**

In the interest of time, this aspect of the Technical Services Team work was not reviewed.

### **General Manager Report**

#### **Winter Reliability Report**

The General Manager explained the essence of the guidance from ISO-NE and MMWEC with regards to the expected reliability of electric supply for this winter. The long range forecast is a 50/50 probability that peak load this winter will reach 20,269 MW (1% higher than last year), while the weather is likely to be warmer and wetter than usual, driven by a strong El Niño oscillation. ISO-NE has launched a new Inventoried Energy Program to gain better visibility in the fuel supply of plants engaged in the capacity market over the winter, and Marblehead will participate as discussed above. The summary of reserve electric capacity in New England under different weather scenario is shown from page 10: the takeaway message is that unlike last year, there is no particular reliability concern of load shedding this year. This could change with extended period of cold weather and possible unplanned generation and transmission outages. (Hence the increased emphasis of ISO-NE on ensuring that generating units that are in the capacity market can run if called upon.)

#### **Budget**

MMLD is ending 2023 in good financial conditions. The latest forecast for bulk power purchase pricing is not yet available from MMWEC. MMLD is also continuing to try and hedge some of the open market power purchase positions. Based on the November forecasts, MMLD forecasts a 2024 Operating Budget of \$21.696M (p 11). The main expenses after power purchase are Payroll and Benefits, and Depreciation. The final 2024 operating budget with new items compared to 2023 will be provided at the next meeting.

#### **AMI (Advanced Metering Infrastructure) consultant.**

MMLD has discussed with Jackie Lemmerhirt, a consultant with substantial experience in AMI systems. See slides page 12. Having worked with several utilities professionally, in software management positions with these companies, she understands the balance between hardware and software for AMI and Meter Data Management (MDM) systems. As a consultant, she has worked with a number of municipalities in MA and other states. She has experience with a number of vendors in the AMI space, including MMLD's supplier NexGrid. MMLD will retain her as a consultant in a contract not to exceed \$12,000, to get her expert advice on how to integrate data between proprietary system (NexGrid) and more standardized software systems collecting and analysing the data. She is a neutral, experienced third party, whose experience will benefit MMLD. There is no need for a formal vote of the Commission, as the proposed contract amount is below the threshold and entering into this relationship is at the discretion of the General Manager. The Commission does support MMLD hiring Lemmerhirt Consulting, as proposed by the General Manager.

### **Writing off receivables from inactive accounts**

At the request of the Business Manager, the Chair moved the following proposal:

To write off the balance due in inactive accounts with no activity between November 1, 2021 and October 31, 2022 in the amount of \$73,436.84. Seconded by Commissioner Yarmoff.

This is a similar amount as last year's. MMLD does continue to collect on these accounts, but would like to take this amount off the books for the accounts with no activity over a year.

**Vote #2023-48                      Unanimous.**

### **MIT Sloan School of Management**

The Marblehead Light Commission worked with MIT's Sloan School in 2023, participating as a host for a Sustainability-Lab (S-Lab) project. These projects are part of the curriculum for Sloan School MBA students working on real sustainability problems in the corporate and industrial world, page 13. A group of three students worked with us on the subject of solar electricity production in Marblehead and the possibilities to increase this production. A report was produced which Commissioner Smith and Yarmoff reviewed. It will be circulated to the Commission and MMLD.

The Sloan School contacted Commissioner Yarmoff to see if the Light Commission wants to host another team this year. A meeting will take place with faculty on December 20. The timeline calls for potential hosts to write up their proposal by January 10, 2024, then discuss the proposal with faculty to ensure the problem proposed is adequate in view of the objectives of the student's project. The proposals will then be pitched to the students on February 7, at which point the MBA students will determine which project they would be most interested to work on. Marblehead will be competing with companies such as Fidelity, Procter & Gamble and GM for the students' interest. The process, if any student chooses to work with us, will include having the team redefine the problem ("Good Problem Formulation") then having Commissioners work with the students on a weekly basis during the first and second quarter. Commissioner Yarmoff and General Manager Kowalik will meet with MIT's faculty to discuss possible projects themes. Problems considered currently include:

- Making ToU rates effective;
- Interest and trade-offs between short and long term BESS Storage, residential or utility scale; or
- Resilience and micro-grid.

### **Upnine Contract Proposal**

MMLD has been discussing with Upnine the possibility of this company taking on the monitoring, remediation and management of part of the communication system that MMLD maintains to gather metering information from the field. A contract proposal has been sent to MMLD. The General Manager recommends entering into a three year, 8 am – 4 pm remediation contract. This could be adjusted in coming years if additional coverage is felt necessary. This \$31,632 contract does not include an on-boarding fee of \$5,000.

**Vote #2023-49                      Motion to approve the spending of \$36,632 for year one of a three-year agreement to provide MMLD with the Proactive Monitoring, Remediation, and Management of the MMLD Meter Data Fiber Backhaul System was moved by Commissioner Smith, seconded by Commissioner Frechette. Unanimous.**

### **Village 13 substation replacement update**

Moving transformers and switchgear into the site is complicated because of the weight of the equipment. The recommended approach into the substation would allow to avoid the electric duct bank, if the path is widened to edge of the property line of the Sewer and Water parcel (where

underground pre-cast concrete sewer parts are currently stored). The fence would have to be modified, the transformers would not come through the entrance but where the current fence is located. MMLD reviewed last week the proposed design of 11 precast concrete portions which would go over and protect the forced sewer line, with South East Essex sewer district, their civil engineering firm, and Marblehead Sewer and Water Department. The project is estimated to cost about \$200K. Virginia Transformer has sent us a document stating that the first transformer is arriving May 1, 2024. Everything needs to be ready on site to receive the shipment.

Commissioner Yarmoff requested that a detailed timeline of all the activities be presented at the next meeting. There are still a lot of moving parts: surveying the property; moving the sewer equipment, MMLD's equipment; putting out to bid the pre-cast concrete bridging elements; getting them manufactured and installed; modifying the fence... Poles currently stored on site will be removed before the transformers arrive. They can be moved to the Tioga way site, see below. Alternatively, they could be stored next to the substation next to Temple Emanu-El, where MMLD owns land. All this needs to be done before May 1. It would be very useful to have a detailed Microsoft Project Timeline to identify the critical path, if any, and ensure that the project is on-time. The General Manager will invite Mike Barrett, who is very involved in managing this project at the next Commission meeting to present this Microsoft project timeline.

### **Tioga Way property discussion**

In 2019, the Town approved the transfer of the Tioga way property for use by the Light Department. There is one entrance into the property from Lincoln Avenue. Another entrance to the parcel could be created from Tioga way or from Hoods Lane if an easement to use this private road is obtained. Yet another entrance could possibly be created on the side of the boat yard, which would have the added benefit of giving fire-access to the site. In a next step, MMLD should talk with a site developer to figure out what would be the best way to develop this site. Easements to enter the property should be possible to obtain. The part of the property closest to Tioga way can be developed relatively easily as access from Tioga way is straightforward, the plot can be graded and used for multiple uses by MMLD, to store equipment, potentially for batteries installation.

### **Electric buses**

The EPA has launched a rebate program for School Electric bus, which is a lottery not a competition, allocating up to \$200,000. EPA funding unlocks Mass CEC funding. This is an opportunity for Marblehead which is not a town eligible for previous round of funding, as part of a non-priority district). Applications are due January 31. The School Committee has to be the lead on such a project, but a Light Department affirmation that the local utility is in support of the concept is necessary. This subject is on the school committee's agenda for their next meeting taking place this week. Highland bus would be the applicant. If the project were to go forward, MMLD would benefit from capacity reduction from the use of the battery (226 kWh) during the summer months. With Marblehead's small bus fleet of 5 vehicles, there could be an issue of range, as buses are not only used in town but also used for sports outings. The proposed submission is non-binding. There is no expectation that the Light Department finances the charging infrastructure: rather this statement is that MMLD will coordinate with the schools. In other words, it would become a customer project like any other. The infrastructure in place at the Brown school would allow installing a charger.

Commissioner Hull wants to make sure that by signing this document, MMLD is not locked into anything. With this project, there are many reasons why the final decision may be a "no go", but lack of support from the Light Department should not be one: we can eliminate this point of friction so that the School Committee can take the appropriate decision from their perspective. The General Manager stated that if the School Committee wants to go ahead with this, MMLD will support the project. Commissioner Yarmoff remarked that in a town government where each function works in its own silo, we know it is

difficult to synchronize decisions, we know from experience that support from other town departments is not to be taken for granted.


**Vote #2023-50** Motion to have the General Manager sign the document affirming that MMLD will coordinate with the school to submit an application to the EPA rebate program moved by Commissioner Wolf, seconded by Commissioner Frechette.  
**Unanimous.**

The General Manager noted that the board needs to direct the Light Department with regard to the role that MMLD should play to plan for electric charging infrastructure in town, for fleets and for private uses.

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


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#### Documents presented during the 12/19/23 Light Commission Meeting



### December 18, 2023 storm impacts

- Wind-blown trees down at two locations, took down MMLD utility poles: Rockaway St and Dameys Way (off Waldron St).
- MMLD line crews were able to stay on top of customer calls all day





## December 18, 2023 storm impacts

- Widespread damage - 6 Different Mutual Aid requests from all 6 New England states
- MMLD line crew Kyle Laron & John Ragusa, and Distribution Mgr Greg Chane in caravan to Calais, Maine...need is until Saturday
- Positive benefit of tree trimming program is evident



## Engineering & Tech Services - Update

- MMLD-initiated New Project Engineering
- Customer-initiated New Project Engineering
- Substations – Ongoing Operations & Maintenance
- Wilkins Plant - Operations & Maintenance
- IT/Regulatory/Other
- Emergency Response – extreme weather



## Tech Services Team

- Colin – Group Manager and Electrical Engineer
- Jack Ravago- Senior Maintenance and Operations Specialist: Substation maintenance and testing, distribution system switching, and Wilkins Plant operator
- Didi Rubano – Lead Meter Technician
- Paul Surette – Maintenance and Operations Specialist: Fleet mechanic, HVAC/facilities maintenance, Wilkins Plant operator, shipping & receiving
- Nate Kobiarka – Advanced Electric Utility General Tech: Substation specialist (trainee), distribution system switching (trainee), and Wilkins Plant operator (trainee)



## MMLD-Initiated Projects

- Village 13 upgrade – tech team member with PLM
- Battery storage siting evaluations – multiple locations
- 1304 line upgrade – Village 13 to Beacon substation - daily switching to de-energize line while line crew installs new poles (45 poles)
- (unplanned) Dec 14. Foster Street – pumping station alarms and low V alerts from meter. Evaluate for short term solution and long term redesign/refeed
- System PF correction - opened capacitor banks Nov
- AMI communication improvements and solutions



## Customer-Initiated Projects

- Expanding power needs for Blue Anchor Millworks, Beacon St woodshop equipment - (3-phase 300 kVA 277/480 volt) new pad and refeed
- Sailmaker Place – 80 Tioga Way...48 residential units
- Mariner Way – 1MVA transformer and multiple pole relocations, CTs and wiring for metering
- Town DPW building 100 Tower Way – increased power needed
- The Elbridge - Gerry School Condos – 1-ph to 3-ph, increased power needs ongoing, relocate feeds, additions 1-ph service requested
- Temple Sinai – 100 kw solar PV array
- Residential projects ...



## Residential Projects

- Bass Rock Lane
- Casino Road
- Wyman - EV charger at a ledge-challenged site
- Ocean Ave
- Harbor Ave
- Beacon St
- Solar application reviews (distribution reliability)





## Substation O&M

- Clifton - Dec. switchgear testing, switching, de-energizing, and racking out breakers.
- Commercial St. – remote switchboard meter display replacements/upgrades
- Oversee/Review weekly substation visits & meter readings
- Took delivery of retired pole mount transformers from Middleboro Gas and Electric w/ assistance from Irby
- Transformers Spec'd and Ordered, 45kVA 3-ph pole mount stacker, fiberglass box pad for Blue Anchor project, 10 reconditioned 50kVA pole mounts for stock, 300kVA 3-ph pad mount to replenish inventory.



## Wilkins O&M

- Oct. unscheduled DEP compliance inspection
- ISO Winter Readiness Survey submitted Dec
- Participate in ISO IEP (Inventoried Energy Program)
- ISO GADS (Generating Availability Data System) monthly review
- ISO Weekly OP21 Fuel & Emissions survey
- Wilkins fence unplanned repairs
- Catalyst monitor data pulls for reporting
- ISO Summer and Winter Claimed Capability Audits



## IT/Regulatory/Other

- Dept. Network Server Maintenance Coord with IT vendor 1Path
- Primary contact with Tighe & Bond for DEP & EPA Wilkins filings
- EIA reports (EIA-860, EIA-861, EIA-923A), NPCC participation and UFLS compliance surveys, NERC Alert responses and reliability assessments, MassDPU, MMWEC tech contact and filings
- Town & MMLD fiber optic system projects – new cameras, shared fiber
- AED battery and pad replacements
- Backflow tests sprinkler system coordination



# MMWEC Winter Reliability Update 2023/2024



## Background

- In an effort to keep MLP members informed of the current outlook for generation in the region, MMWEC has prepared the following outlook for Winter 2023/2024
- This is intended to relay forecast from ISO-NE and NOAA as well as provide a reminder of MLPs' roles in an energy or capacity deficiency



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## What are the Meteorologists Saying?

### ISO-NE

- Peak winter load is forecast at 20,269 MW (50/50 Forecast); 260 MW higher than last
- Peak winter load is forecast at 21,032 MW (90/10 Forecast); 350 MW higher than last
- Mystic RMR, still in place as is; IEP program to provide security

### NOAA

- 40%-60% chance of above average temperatures through February
- 40% chance of above average precipitation for coastal New England
- Patterns driven strong El Nino effect in Pacific



2

# ISO Scenario Analysis (Comparison)

| Scenario Descriptions & Results   |   |   |
|---|---|---|
| Scenario:   | Moderate  | Severe  |
| Similar Winter  | Winter 2017/2018  | Winter 2013/2014  |
| Observed Weather Conditions   | Milder than normal; two-week span of significantly below normal temps       | Colder than normal; six cold snaps of four or more days; one stretch of ten consecutive days below freezing |
| Peak Load Modeled   | 15,600 MW   | 20,300 MW   |
| Total Winter Energy Demand Modeled                                      | 29,200 GWh  | 31,100 GWh  |
| <b>Results:</b>   | <b>Sufficient capacity and energy to meet peak loads and energy demands</b> | <b>Capacity deficiency actions across a few days, energy shortfall unlikely</b>                             |
| Assumptions   |   |   |
| Imports   | Vary between 3,000 – 4,000 MW/hr when ≥ 20°F; 1,500 MW/hr when < 20°F       |   |
| Behind-the-Meter PV Capacity  | 6,400 MW nameplate  |   |
| No significant or long-duration generator or transmission contingencies |   |   |

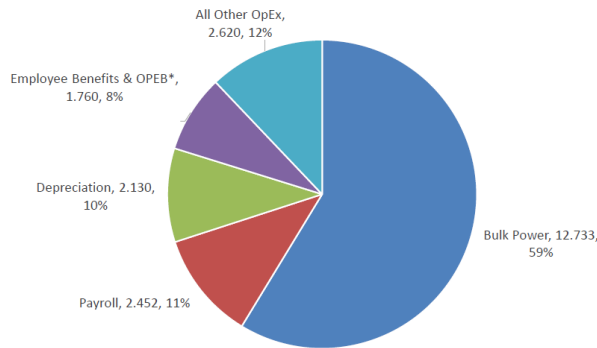


## Key Takeaways from ISO Winter Analysis

- New England should have sufficient resources to meet peak demand this winter
- ISO will continue to monitor natural gas deliverability throughout the winter; consistent with past winter seasons, the ISO assumes that approximately 3,500 – 4,300 MW may be at risk due to constraints
- Based on generator capabilities expected during the winter season, capacity analysis indicates a surplus even after accounting for generation at risk due to gas supply
- Extended periods of cold weather may rapidly deplete stored fuel inventories and capacity outlook will be adjusted accordingly
- Unplanned generation & transmission outages could rapidly decrease capacity surplus margins for the region



### MMLD Proposed 2024 Operating Budget (\$MM) - \$21.696





## 2024 Operating Budget

| Revenue & Rate Requirement Projection 2024      |                 |                 |                 |                 |  |
|---|-----------------|-----------------|-----------------|-----------------|--|
| Using 5% Depreciation                           |                 |                 |                 |                 |  |
| (000's)   |                 |                 |                 |                 |  |
| Items   | Budget          | Budget          | Projected       | Proposed        |  |
|   | 2022            | 2023            | Actual          | Budget          |  |
|   |                 |                 | 2023            | 2024            |  |
| Total Operating & Maintenance Expense Budget    | 19,510.0        | 22,996.0        | 21,085.0        | 21,365.8        |  |
| Surplus Revenues returned to Town of Marblehead | 330.0           | 330.0           | 330.0           | 330.0           |  |
|   | 0.0             | 0.0             | 0.0             | 0.0             |  |
|   | 0.0             | 0.0             | 0.0             | 0.0             |  |
|   | 0.0             | 0.0             | 0.0             | 0.0             |  |
|   | 0.0             | 0.0             | 0.0             | 0.0             |  |
| <b>Revenue Requirement</b>                      | <b>19,840.0</b> | <b>23,326.0</b> | <b>21,415.0</b> | <b>21,695.8</b> |  |

### Lemmerhirt Consulting Background

- 20 years of consulting to utilities: IOUs, co-ops, municipals
- Experience
  - Executive positions with Aclara, Mueller Systems
  - AMI and MDM product management
  - AMI and MDM project management
- Team with over 30 years of utility experience
- Focused expertise: AMI, MDM, Integration, Load Research, Rates
- Based in Framingham, MA

### Project Involvement

#### Completed Projects with:

- Concord Electric
- Middleborough Gas & Electric
- Sterling Municipal - Electric and Water
- Groton Electric
- Reading Municipal
- Clark County Electric Cooperative (Indiana)
- Ipswich MA

#### Currently Working with:

- North Attleborough Electric
- Holden Municipal Light Dept
- Vermont Public Power Supply Authority
- New Brunswick Power
- SW Arkansas Electric Cooperative
- Washington Electric Cooperative
- Vermont Electric Cooperative

## AMI Vendor Experience

- Itron and Silver Spring
- Landis & Gyr
- Aclara
- Eaton
- Honeywell (Elster)
- Trilliant
- Sensus
- NexGrid

| Vendor Selection | Number of Projects |
|------------------|--------------------|
| Eaton            | 5                  |
| Aclara           | 1                  |
| Itron            | 3                  |
| Landis & Gyr     | 2                  |
| In progress      | 2                  |

## Our Team and Roles

Jackie Lemmerhirt – Project Lead, AMI Lead



- Key point of contact
- Overall project management
- Lead interaction with staff, AMI vendors
- Develop AMI Recommendations

Geetha Ganesan



Business Process & Benefit Analysis Lead

- Conduct “as-is” and “to-be” system evaluations, including technology required
- Develop business process plan
- Lead quantification of benefits

Barbara Leary – Stakeholder Communications



- Collaborate on stakeholder engagement
- Lead customer strategy development
- Develop stakeholder and customer communications and materials

## Sloan School S-Lab Project steps

- Participated as a host in Spring 2023
- 2024 calendar
  - Scoping possible problems proposal with faculty 2023/12/20
  - Draft of application 2024/01/10
  - Scoping and problem formulation workshop 2024/01/10
  - Pitch of problems to students 2024/02/07
- Work of team: 1Q24 – 2Q24

- Possible projects
  - Making Time of Use effective: what does it take?
  - Storage in Marblehead: short vs long term; Utility vs residents: aiming to reduce energy costs in Marblehead by x%.
  - Resilience and microgrid
- Others?
- Problems need to meet the Sloan School curriculum
- Important to have a « Good Problem Formulation »

## Three steps to good problem formulation

1. Identify the high-level process you are improving and the metric you care about
  - Is it cost reduction? Risk management? Revenue growth?
2. Scope down to a specific manifestation of that problem on which you can make progress quickly
  - Ex. 6-8 weeks, duration of the S-Lab class, more progress with many short projects than one big change initiative
3. Form your problem statement
  - A single sentence with a clear measurable gap



## Anatomy of a Good Problem Statement

It *explicitly references* something that the organization or person in question cares about

- Revenue, profit, defects, customer satisfaction
- Mission and values and usually a good place to start



It contains a *clear notion* of a gap, shortfall, or dissatisfaction  
 $Target - Actual = Gap$

The key variables are *quantifiable* (though not necessarily currently measured)



It is as "*neutral*" as possible concerning causes or solutions



## Common failure modes:

Skipping writing it down, because "we all know the problem" so let's get moving

*Writing it down in one sentence forces you to be clear*

Problem statement as solution in disguise

*"The problem is that our staff need more training"*

'Boil the ocean'- trying to solve too much at once

*"We need to get to net zero"*

Lack of precision and quantification

*"We need more workplace diversity"*



## Some examples (Good!):

- Bank scores a 3/10 in feeling confident in hiring and supporting an associate with a disability. Improve their confidence increasing their score to a 6/10 or better.
- Our paper losses are at least 10% versus an industry standard of 5%. This is negatively affecting our financial position and our ability to be competitive.
- Reduce emissions at one Pharma plant by 5% in 1 year in order to meet corporate climate goals.



## Some examples (Bad!):

- The problem is we don't have a sustainability strategy.
- Our CEO doesn't care enough.
- We need a model to identify sustainable investments for our portfolio.
- We need to re-organize our key functions to align with and support the emerging customer 'verticals'.
- Those guys in marketing are jerks and don't understand a thing about manufacturing. All the changes they request make production impossible to schedule and we always miss our targets.



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