DRAFT
E&O Committee Meeting
Remote Zoom Meeting – March 13, 2023
10:00 a.m. – 11:30 a.m.

Committee Directors: Tom Mongeon (Chair), Leo Dwyer, Bill Darcy, Carolyn Kedersha

Attendees: Mike Jennings, Josh Mazzei, Jim Bakas, Madeline McElaney, Alyssa Clemsen Roberts, Autumn Doan, Kristen Taylor, Dustin Ryan, Brian Callnan, Maida Lessard (recording)

Chair Mongeon convened the meeting at 10:00 a.m.

Agenda Review

Agenda approved as written.

Meeting Minutes Approval – October 24, 2022

Upon motion by Mr. Darcy and seconded by Mrs. Kedersha it was:

VOTED: To accept the minutes - Mr. Dwyer abstains as he was not present for the October 24, 2022 meeting.

Safety Update

Mr. Ryan shared a presentation on a Safety Summary for 2022 and Safety Initiatives for 2023 going forward.

Safety Summary – 2022

- Recordable Incidents – 4
  - Goal 3.45 → Actual 1.83
- DART Incidents – 5
  - Goal 2.06 → Actual 2.29
- MV Incidents – 1
  - Goal 3.16 → Actual 0.68

Mr. Dwyer asked how many miles we drive at the Coop. Mr. Ryan responded it is well over a million closer to 1.5 million.

Safety Initiatives – 2023

- SPCC Plans – Partnering with GZA to come up with a plan.
- Safety Management Plan – Completed by the end of the 3rd quarter.
- Community Outreach – Fires and Wires Training
- Emergency Action Plan – Expanding on this year and using as an Appendix to our Business Continuity Plan.
- Personal Voltage Detectors – Trialing a few.
- Safety Procedure for Island Work/Restoration – SOP as to who to contact and what kind of equipment should be brought to islands - complete by end of 2023.

2022 CCB Final Spending and Project Updates

2022 4th Quarter Overview

Mr. Jennings shared a presentation of the final spending on the CCB for 2022.

- Recurring spend was originally budgeted for $9.4 million, revised to $11.1 million, and the actual spending came in at $11.3.
    - Overspend - New Lines-New Consumers (supply chain issues), Special Equipment-Meters (chip shortage), Service Wires to Increase Capacity, Joint Pole Safety Violations (clearance violations).
    - Underspend - Joint Use – Roadway Relocations (third party attachments), Transformers (delays in delivery due to lead times)

- Elective spend was originally budgeted for $8.3 million, revised to $8.1 million, and the actual spending came in at $6.1 million.
    - Overspend – New Substations Transformer Replacement Plan (delays in the Glen Substation with permitting and environmental work – added another Substation crew and was completed in 2022).
        - Moved the Webster Substation up on the schedule due to significant issues with transformers and bushings. Jackson Substation will be next on the list for 2023.
        - In 2024 the Bridgewater and Center Harbor Substations will be completed. An additional easement was acquired from the abutter for the Bridgewater Substation that will allow for expansion instead of relocating.
    - Underspend – Line Conversions, Minor System Improvements (chain supply issues), Mobile Substation (weight issue – needed to re-engineer), and Substation Changes

- Reclosers (includes SCADA), Voltage Regulators, and Capacitors (not required in 2022).

Chair Mongeon inquired about the Mobile Substation weight issue and how that was determined.

Mr. Jennings replied that it was due to the amount of requirements we chose as well as reviewing with the transportation paths and the actual substation yards it would be used in. Accommodations were made to lessen the weight.

- Year end actual for Recurring was $11.3 million, and the year end actual for Elective projects was $6.1 million for a grant total of $17.3 million for 2022.

Mr. Dwyer asked how many new services were installed in 2022.

Mr. Jennings replied approximately 1,011 new services were installed in 2022.

Chair Mongeon commented he liked the way the categories are divided on the Capital Construction Budget and the way we are continually investing in our infrastructure. Chair Mongeon mentioned that IOUs often use transformers until the fail so the sense is we are doing better than the IOUs.

Mr. Jennings commented that we re-prioritize the substation rebuilds every year around the condition of the transformers and replacing them before they fail.

Direct Buried Replacement Program Year End Update

Mr. Mazzei shared the 2022-year end results as follows:

- 15 individual projects were completed primarily in Conway and Plymouth District areas of operation
- 3.3 miles of primary conductor was installed to replace the existing Direct Buried – total spend was $2.3 million
- For 2023, 7 projects installing 3.4 miles of new primary conductor – projected spend is $2.3 million. Moving into larger developments which will show less projects, but the same amount of conductors replacing. Also installing a 2 inch conduit for future Broadband build outs.

Mr. Dwyer asked if $700k a mile is correct. Mr. Mazzei responded that is correct as anytime you open up the ground and restore it as it was can be costly but will benefit the membership.

Committee Strategic Discussion Update

Mr. Jennings shared the Strategic Topic List that was discussed at the last meeting and recently revised:

- ERM Follow Up - Supply Chain Discussion
- PUC & DOE Regulation as it applies to NHEC
- Mutual Aid and Storm Response (including future risks)
- Reliability Overview (including how to identify projects)
- Reliability vs Resiliency.
- Grid impacts from PV, electrification, and bi-directional feeds.

Continual E&O Strategic Discussion

- Grants

Mr. Darcy asked where this list is located. Mr. Jennings replied it is in OnBoard.

ERM Update

- The supply chain issues in the industry came up as the number one risk to NHEC
- What has happened:
    - Global supply chain crisis initiated by Covid
    - Supply and demand – international air freight demand vs capacity
    - Rising costs
        - Materials – silicone steel (transformers, battery storage)
        - Labor
        - Shipping – 1100% ocean freight, 500% air freight, 25-45% domestic freight
        - Lead times
    - NHEC Examples:
        - Schedule 80 3’ conduit – was $2.38/ft, now $4.35/ft
        - 1/0 underground wire – was $2.41/ft, now $4.97/ft
        - 3” service entrance heads – was $36.22, now $140.00
        - 167 kVA padmount transformer – was $4,000, now $16,000, +2 years lead time
- What are we doing:
    - Limited control over global issues
    - Mitigation to reduce impacts
        - Additional purchases
        - Idle services

- Increased maintenance
- Removing standards (not safety standards)
- Creating new relationships
- Rationing materials
- Modifying projects
- Increased communication with members
- Mobile transformer/TRP

Mr. Darcy asked if NHEC is taking the same approach for Broadband related business/materials.

Mr. Jennings replied we haven't seen as large of an impact for Broadband materials as related to electric supplies (meters, transformers, etc). There is currently a long lead time on CALIX materials but have been able to order large quantities in advance and they're not shipped until we call to have them shipped.

Ms. McElaney asked about storage with the ordering of surplus materials and is NHEC considering additional storage space in the future facility changes. Mr. Jennings replied storage is challenging – NHEC recently converted the Rumney Substation property into a temporary additional storage yard as well as utilizing the Fairgrounds property. Working with Graybar and other vendors to assist us with storing additional materials at their location for NHEC. Future additional storage within our new facilities for broadband is also being discussed with the facilities consultant.

Ms. Roberts commented as we are looking at refreshing our building study that was paused before. The warehouse and proper storage is something NHEC will ask the consultant to look at.

Mr. Bakas also commented he is working with the consultant on this and looking at possibly moving the Plymouth District off campus and utilizing that building for storage.

Ms. Kedersha asked about the comment of not being able to perform maintenance at a substation without a mobile substation. She inquired if this meant we cannot perform maintenance on the rest of the system.

Mr. Jennings replied if NHEC needs a mobile substation to complete a substation rebuild, we can't use the only spare mobile to perform maintenance, we always need one spare mobile substation in the event of a critical failure.

Chair Mongeon asked how we would prepare in the event of a storm as far as materials.

Mr. Jennings replied we generate a storm stock sitting aside not touched. Graybar also has a storm stock for NHEC. Exception was Storm Elliot as we had the highest number of broken poles that were not anticipated.

Chair Mongeon also asked if NHEC is using an ERP (Enterprise Resource Planning) application for purchasing and our vendors aligned with this to coordinate?

Mr. Jennings replied we utilize NISC for all of our inventory management such as ABS (Accounting and Billing), as well as an application our Engineering standards.

- Where do we go from here:
  - Howard transformer price decrease
    - First decrease since Covid-19
  - CARES (Board voted to join)
    - Coalition for the Advancement of Reliable Electric Service
  - Improve redundancy and monitor
    - Circuit ties and a new mobile substation
    - Increasing interest rates
  - DOE NOPR for transformer conservation (See 2 attachments in packet)
    - Opposition due to increased lead times and reliability (steel)

Chair Mongeon mentioned there are several articles that have been discussing ongoing supply chain issues in the utility industry and will put together a list to share with the Committee.

Grant Discussion Updates

Mr. Jennings discussed the current three main infrastructure grants:

- 40101D Program through the State of NH (28% set aside for small utilities)
  - In discussions with the State and Bill Elliott at the DOE – NHEC has a new hearing date of March 20th at the DOE in Concord and we are trying to get the "disadvantaged communities" language in the grant revised. Written comments are due to the DOE March 24th and NH DOE's application to the Federal Govt is due at the end of March.
- ERA – Energy Improvements in Rural Areas
  - Communities less than 10,000 people
  - Opportunities for reliability and resiliency
  - Concept papers are due April 14th
- FEMA Hazard Mitigation Grants
  - Funding for mitigation after a FEMA event happens

- NHEC received almost $200k in Cat Z funding for our SCADA Expansion pilot from the FEMA event in 2018

Mr. Callnan shared some updates:

PR&A Department:

- March 1st – new employee, Rey Duran started – this position is funded by the DOE and the term runs for 1-2 years. He is helping with the transition of the System Analyst that recently retired as well as data analysis.
- EV Bus – Rumney won $1.2 million from the EPA for 3 busses – may move to the Transactive Energy rate and located at the Rumney school.
- Pacific Northwest National Laboratory – had a grant for 7 months to fund for the Transactive Energy rate – report is expected in May 2023

Inflation Reduction Act

- Cooperative Transition Fund and RUS for forgivable loans - funding announcement is $9.7 billion for Cooperatives in the country which NHEC is watching closely

Mr. Darcy asked what the $9.7 billion grant is for. Mr. Callnan replied it is for purchasing of Renewable Energy Systems, Zero Emissions Systems, Carbon Capture Systems, and Energy Efficiency Improvements to Generation and Transmission Systems

- Direct Pay of Energy Tax Credits – we may consider RFP for batteries (30% tax credit)
- Home Energy Efficiency and Beneficial Electrification Rebates – majority of this funding will be distributed through State programs – NHEC is keeping an eye on it.
- GRIP Program – looked at this but did not move forward as it required a significant cost share from the Coop and would prohibit us from participating in the 40101D grant.
- EPA Clean School Bus Program – next funding round will be grants and not rebates.
- DOE Rule and Municipal Utility Advanced Cyber Security Grant – the FOA was expected to be published in Jan/Feb but has been delayed.

Vegetation Management Practices Update

Mr. Mazzei shared a Right of Way Clearing presentation – Full Width vs Minimum Trimming:

Full Width Clearance

- NHEC ROWs are almost exclusively 30 feet wide.

- These ROWs are cleared of tall growing species from ground to sky.
- This maintenance cycle is approximately every 8 years.

Minimum Standard Clearance

- This method is used by other New England utilities as their minimum standard.
- Trimming cycle for this standard is approximately 4 years to prevent regrowth into the powerlines.
- However, offroad ROWs and major backbone lines receive ground to sky trimming at the other utilities.

Clearing Method Comparison

In Q1 2023, NHEC Vegetation Management (VM) conducted a cost comparison using two projects from the 2023 VM workplan.

- Melvin Village Sub, MV14A: 6.15 miles of line clearance on the Melvin Village 14 circuit.
- Tamworth DP, Windsock Village: 3 miles of line clearance on a section of the Tamworth DP.

Next, a NHEC trimming contractor was instructed to rebid these projects using the minimum standard clearance specification.

- Melvin Village Sub, MV14A – Full Width Clearance: 6.15 miles, $24,035 price per mile, $147,817 total cost for 8-year trim cycle
- Melvin Village Sub, MV14A – Minimum Standard Clearance: 6.15 miles, $18,341 price per mile, $112,800 total cost for 4 -year trim cycle

Minimum Standard Clearance on this project is $5,694 less per mile and $35,017 less overall to trim to this reduced standard.

- Tamworth DP, Windsock – Full Width Clearance: 2.92 miles, $15,917 price per mile, $46,478 total cost for 8-year trim cycle
- Tamworth DP, Windsock – Minimum Standard Clearance: 2.92 miles, $12,822 price per mile, $37,500 total cost for 4-year trim cycle

Minimum Standard Clearance on this project is $3,074 less per mile and $8,978 less overall to trim to this reduced standard.

Full Width vs Minimum Standards Results

Vegetation Clearance at first glance seems to be less expensive to execute at the Minimum Standard Specification. However, this is not the case.

- Trim Cycle: Since the Minimum Standard maintains the trees much closer to the conductors, 4-year trimming cycles are necessary to ensure safety and separation from live wires. This doubles the trimming interval NHEC is doing now.
- Trimming Methods: Minimum Standard trimming must be recut exclusively with a skilled bucket truck crew due to line proximity. This is most expensive vegetation control method.
- Traffic Control Costs: Since Minimum Standard trimming must be cut approximately twice as often as full width trimming, traffic control costs double for that 8-year period.
- Outage Restoration/Repair: These efforts are prolonged due to conductor and equipment entanglement in vegetation allowed to grow within 10 feet below the power lines.

Minimum Standards Clearance Trimming

- Safety: Sustains the distance between trees and conductors, but 4-year cycle must be maintained!
- Mechanical Trimming: Use of mechanical methods are limited by proximity of power lines. Undergrowth is allowed which precludes mowing or targeted herbicidal treatments.
- Outage Restoration: Entanglement of lines and equipment in the undergrowth delays repairs.
- Cost: Since trimming must be done approximately every 4 years, labor costs escalate at twice the rate of 8-year, full width cycle.

Full Width Clearance Trimming

- Safety: Maintains the greatest distance between trees and conductors.
- Mechanical Trimming: Re-clearing at year 8 allows for the use of mechanical trimming, such as Jarraffs and mowers, which are the most economical trimming methods.
- Outage Restoration: Full width trimming maintains the most open space to allow for the line crews to quickly and safely access damaged equipment to facilitate repairs.
- Costs: Full width trimming prolongs the trimming cycle, which reduces overall costs.

Ms. Kedersha asked if we are trying to reduce the 8-year trim cycle based on our consultants.

Mr. Mazzei replied that we want to get it down to the 7-year cycle range especially if we continue with the full width trimming.

Mr. Darcy asked what the re-growth looks like near the power lines after 8 years.

Mr. Mazzei replied nowhere near as bad as after 4 years as we are starting from ground level.

Mr. Dwyer commented he thought it would be helpful for the full Board presentation just to say we currently spend $XX per year doing the full width trimming every 8 years and if we go to a 4-year minimum width trimming cycle it would cost $XX per year.

Mr. Bakas commented that the 4-year cycle is good, however, if budget money is cut, it will take 4-5 years to catch up.

Chair Mongeon mentioned that he wondered what the members would prefer – the full width trimming or the minimum trimming.

Future meeting – Fall 2023 to review CCB for 2024

Action Item:

- Chair Mongeon will compile a list of supply chain articles for Mr. Jennings/Committee

Upon motion by Mr. Darcy and seconded by Mr. Dwyer, Chair Mongeon adjourned the meeting at 11:40am.