Net Zero Feasibility Study for Municipality of Temagami

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Agenda

1. Introductions
2. Overview and deliverables
3. Data collection
4. Site Visit
5. Workshops
6. Timelines and Next Steps

Introductions

1. Enerlife team
2. CIMCO team
3. Municipal team

Overview and deliverables

1. Assess the technical and financial feasibility of achieving net zero carbon emissions at 3 buildings and determine an actionable plan and practical path forward for each facility
2. Determine the most effective net zero design and implementation plan needed to get each to net zero carbon emissions over time
3. Develop technical solutions, including lifecycle financial analysis in an incremental over time approach
4. Solutions will be aligned with the capital renewal timeline and asset management plan
5. Study aligns with all FCM feasibility study requirements

Buildings

Temagami Arena/ Community Centre – 25,762 ft2

Temagami Municipal Office/ Library– 9,600 ft2

Public Works Office /Garage – 4,064 ft2

GHG Reduction Pathway Scenarios

The study will include the development of two GHG reduction pathway scenarios for each facility:

1. 10-year plan that achieves a minimum 50% reduction in on-site GHG emissions vs. current performance
2. 20-year plan that achieves a minimum 80% reduction in on-site GHG emissions vs. current performance

The study will also include a “short-term deep retrofit” scenario including the same GHG reduction measures except all measures will be implemented in the first five years by utilizing additional funding and financing options.

Study Development

1. Data collection and initial analysis
2. Site visit
3. Energy and building data analysis
4. Review drawings, with site data and perform energy balance
5. Identify measures initially focusing on optimization of equipment operation, then heat recovery where possible, followed by renewables (solar PV)
6. Overview of low/no carbon measures to be implemented over time using Life Cycle Costing (LCC)
7. Final report with implementation timelines/implementation plan

Initial measures under consideration

1. Upgrades to the refrigeration plant, including adding heat recovery to the refrigeration plant
2. Ice resurfacing measures - adjusting ice thickness and water per flood, cold-water ice resurfacing
3. Installation of Building Automation Systems (BAS) to provide better control of building operations (if not already in place)
4. Upgrades to mechanical and electrical systems
5. Installation of solar PV
6. Full conversion of remaining gas to electric (such as replacing the boiler plant with an electric equivalent).
7. Operational improvements -adjusting temperature and humidity set points, scheduling building systems to run smoothly and only when needed, and lighting controls

Data Collection

1. **Monthly utility data** (most recent 24 months) for electricity, fuel oil/propane and water (propane/oil may not have monthly bills but we need all fill dates/amounts over last 2 years)
   a. Hourly interval data
   b. Most efficient way is to get data directly from utility providers – Letter of Authorization (LOA) is required
   c. Need a copy of the most recent bill for all applicable utilities (electricity, gas, propane, fuel oil, water)
   d. Enerlife will draft LOAs and coordinate with utility providers
2. **2023-24 operating/program schedules** – or typical operating schedules; ice plant operation information
3. **Refrigeration and BAS trends**
4. **Capital plans and asset lists** – lists of the equipment in the facility, condition of equipment, and date they were installed or expected to be replaced
5. **Studies, reports, plans** – energy audits, grant applications, energy/climate change plans, testing reports

Data Collection

Drawings and Schedules

a. Architectural
   i. As-built drawings and floor plans, original and from any new additions
   ii. Shop drawings and specifications of any recent upgrades/replacements of envelope or additions

b. HVAC
   i. As-built ventilation floor plans and heating/cooling plant diagrams, original and from any new additions
   ii. Current mechanical equipment lists
   iii. Shop drawings and performance specifications of new installations/additions
   iv. Sequence of operations/operation schedules, BAS as-builts

c. Electrical
   i. As-built drawings and equipment schedules
   ii. Current lighting fixture counts and wattages

d. Plumbing
   i. As-built drawing set

Data Collection – Shared folder

We will send you a link to a shared folder where you can upload the requested documents

Site Visit

a. Enerlife to conduct in-person site visits (with support from CIMCO)
b. Look at each building system (HVAC, refrigeration plant, boilers, BAS, etc.)
c. What will be collected on site:
    - Photos of the nameplates of all equipment
    - Other equipment details (pictures of balancing valve positions & misc.)
    - Design drawings/riser diagrams for relevant systems (HVAC, Refrigeration and Plumbing)
    - Ice rink operation – ice thickness, ice temp, RH, flooding frequency, flooding water temp
    - Operator interviews on scheduling, occupancy, operations and maintenance

Integrated Design Workshops

1. Getting all the (municipal) stakeholders together leads to better solutions
2. Clear aims and objectives
3. Collective decision-making process
4. Data driven – based on performance data from the building
5. Iterative process

Integrated Design Workshop 1

1. Review the current performance of the buildings, and potential carbon reductions

2. Explore low/no carbon measures that best fit the goals for the facility

3. Get input and feedback from all relevant stakeholders, specifically insights from facility staff (looking for technical feedback on suggested measures and possible implementation challenges)

Attendees: Facility staff (building operators, facility managers)

Integrated Design Workshop 2

1. Review energy savings and GHG emission reductions for all low carbon measures

2. Review and discuss lifecycle costing analysis [review initial outlay of costs and Net Present Value (NPV) for each measure and compare to Business-As-Usual (BAU)]

3. Review and discuss measure implementation timelines

Attendees: Finance/capital and asset management staff

Implementation Workshop (3)

Discuss various implementation considerations, including making the business case, financing, procurement, design, project management, training and M&V

Attendees: all municipal team members (facility staff, finance/capital and asset management staff and procurement staff)

Timelines and Next Steps

1. Data collection and preliminary analysis – we will send you the link to the shared folder for uploading the requested documents
2. Site visits – please provide your availability in mid to late November
3. Integrated Design Workshops – first one approx. 8-10 weeks after site visits
4. Second workshop (with finance/capital folks) – approx. 5-7 weeks after first workshop
5. Final Report – approx. 4-5 weeks after second workshop
6. Third workshop - approx. 4-5 weeks after final report

Thank you.

Please reach out if you have any questions!

Contact Us:

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