CONCORD MUNICIPAL LIGHT PLANT

ELECTRIC | BROADBAND | ENERGY MANAGEMENT

AMS Vendor Recommendation

August 12, 2022

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Framingham, MA

SUMMARY

In its strategic plan, Concord Municipal Light Plant (CMLP) identified an Advanced Metering System (AMS) for both electric and water metering as an enabling technology to:

- Maintain System Reliability
- Maintain or Increase Customer Satisfaction
- Provide Energy Related Services to as Many Customers as Possible
- Improve financial performance
- Reduce Greenhouse Gas Emissions.

Concord Municipal Light Plant (CMLP) and Concord Public Works (CPW) are replacing their existing obsolescing meter systems with a system that will allow two-way communication with customers for improved billing, customer service, and reliability. The Advanced Metering System will also support Town-wide water conservation goals.

In consideration of its strategic goals, CMLP and CPW began the process of selecting an AMS in December 2020. Lemmerhirt Consulting, experts in Automated Metering Solutions, was retained by the Concord team to develop a Request for Proposal (RFP) and support the selection process. The Concord review team consisted of staff from CMLP and CPW, the Town Chief Information Officer and a Municipal Light Board member.

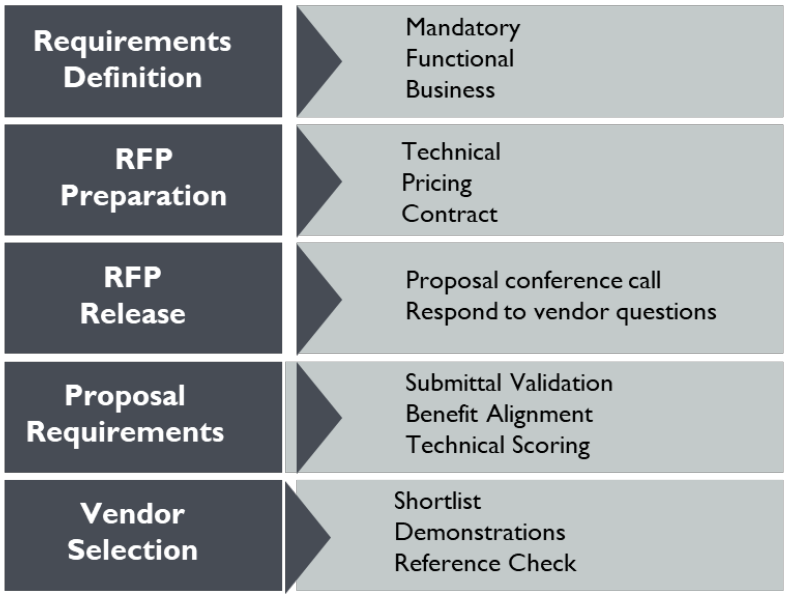
Discussions with the AMS team provided input for detailed requirements that formed the basis of a Request for Proposal (RFP). The RFP was developed and released to industry AMS vendors in November 2021. Nine (9) proposals were received. The evaluation of the proposals covered a review of vendor compliance with mandatory requirements, a technical review of the solution and a review of the product delivery process. After completion of the team member evaluation and rating of the proposals, three (3) vendors were shortlisted. Eaton Corporation, Landis & Gyr and Tantalus Systems were the selected vendors. Each vendor presented to the team and demonstrated their product. Lastly, references were checked especially any references from New England Municipal Electric Departments.

After completing this process, the evaluation team selected the Eaton Corporation AMS solution for the following reasons:

- Concord's mandatory and highly desired requirements including the use of Concord's broadband system for the communications network and at customer premises with broadband were met
- Eaton ranked highest with its technical solution by the evaluation team
- Water endpoints are compatible with a wide range of water meter types.
- Electric and water data can be retrieved as frequently as every 5-minutes. Alerts can be set to real-time delivery, including water alerts.
- Eaton has proven capabilities to support CMLP's load control programs and distribution automation capabilities.
- The Eaton project team has delivered systems to the most local municipal electric departments in New England of any of the shortlisted vendors. All references were very satisfied with the solution.

THE SELECTION PROCESS

A standard methodology for technology selection was followed as shown:



The preparation of the Request for Proposal (RFP) consisted of discussions with a broad group from CMLP and analysts from CPW. The RFP included mandatory requirements, a range of highly desired requirements and detailed questions on electric metering, water communications, network communications, software and product and project delivery. The final RFPs were distributed to the vendors in November 2021. Public notification of the RFPs was available on Commbuys and in the local newspaper. In addition, the RFP was sent directly to the vendors. A pre-proposal conference call was held to share CMLP and CPW's objectives and deadlines then answer initial questions from the vendors. Subsequent questions were answered in writing and shared with all vendors. The AMS proposals were due in January 2022.

Once the proposals from the vendors were received, the evaluation team and Lemmerhirt Consulting reviewed and evaluated the responses. The first step was to determine whether the proposal met the submission and the mandatory requirements. If not met, then no further review was done on the proposal.

The remaining proposals were scored on their technical merit and fit for CMLP and CPW. Scores were organized and tabulated for a comparison of all solutions. For all members of the review team, reading the proposals was an excellent way to understand the details of the solutions, implementation options and the vendors. Pricing was compared, evaluated, and disclosed only after the proposals were reviewed on the technical merits.

The top vendors were shortlisted and invited in person to demonstrate their solutions and answer questions from the team. After the shortlist presentations, vendor references were checked. The team requested references from the vendors for the technology solution that was proposed for CMLP and CPW. If this was not possible, then other references, preferably local municipal references were contacted. Upon completion of the demonstrations and reference checks, the team selected the vendor that was a best fit for both the electric and water departments.

AMS SELECTION

The AMS RFP included the technical topics of electric meters, water endpoints, communications network, and software. Project implementation, product roadmap and corporate history were included in the project and product delivery sections. The complete RFP is available on the Concord website.

The AMS RFP included the following mandatory requirements:

- The Vendor must provide a contractually binding network design covering 100% of CMLP and CPW meters and meeting a 99.5% service level for data delivery. Additional equipment or services required to meet the service level is at the respondent's cost.

- The AMS solution must be hosted, cloud-based residing in a Tier 3 or better data center located in North America with a disaster recovery site in North America.

- The solution, including all equipment and components must have a fifteen (15) year life with equipment warranties no less than three (3) years from the date of installation.

If the vendor did not meet any one of the mandatory requirements their proposal was not reviewed. Nine vendors submitted proposals and six met the mandatory requirements as follows:

Vendor	***Met Mandatory Requirements?***
Eaton (Yukon)	Yes
Core and Main. – an Itron reseller (Gen5 OpenWay)	No
Landis & Gyr (Gridstream)	Yes
NexGrid	Yes
NightHawk	Yes
OATI	No
EJ Prescott (Xylem)	No
Tantalus	Yes
Vision Metering	No

In addition to the mandatory requirements, the RFP contained a list of highly desirable requirements. Vendors meeting these criteria were given an advantage over those vendors that did not satisfy these requirements. The following are the highly desired requirements.

- The AMS Network uses the broadband service to the home for a full wired solution as an option for the customer
- AMS-equipped electronic meters (AMS Meters) for all electric services include an integrated service switch for Form 2S meters and bidirectional metering capabilities

- Electric meters are certified to UL 2735 standards
- The solution has remotely upgradable meters and AMS communications via the AMS Network
- AMS Network communication infrastructure support two-way communications, daily meter reading, interval data collection, on-demand communications, and meter notifications, e.g., tamper and outage
- The system supports and complies with Open Standards including Multispeak
- CMLP's existing and new load control, demand response programs and innovative rate structures (TOU) are supported with the vendor's equipment
- Integration to NISC's CIS, MDMS and OMS
- The vendor has a proven record of successfully managing and implementing similar projects with the technology proposed
- A complete set of documentation and training materials that clearly and accurately describes the installed AMS is provided
- Successful completion of AMS Acceptance Testing occurs upon completed installation of 99.5% all meters
- A minimum of 99.5% of all interval data is returned to the Head End each month.

The AMS vendors were also required to provide detailed technical solution responses covering the areas of electric metering, water meter communications, network communication, system software and Smart Grid capabilities. In addition to the technical requirements, the AMS vendor was required to provide a project plan, a training and support program and a description of their product quality assurance. Each vendor was rated on their compliance in each of these areas by each member of the evaluation team.

Eaton Corporation, Landis & Gyr and Tantalus Systems were rated highest by the team. Each vendor demonstrated their product and answered additional questions from the team. After the shortlist meetings, references for each vendor were checked. Pricing for all vendors was close and did not affect the final vendor selection using a weighting methodology.

The conclusion was that the Eaton Yukon AMS provided the best fit for Concord. The outstanding features of Eaton include:

- The solution uses broadband at the meter as well as the communications network.
- Solid utility references from Massachusetts municipals including Norwood, Hudson, and Sterling.
- Experience integrating with the NISC suite of software.
- A wide range of Smart Grid products are available including load control, distribution automation and EV monitoring.

BENEFIT AND FUNCTIONAL ALIGNMENT

To ensure that the benefits identified for CMLP and CPW are achieved, they must be aligned with the features and functions of the Eaton Advanced Metering System. The following table identifies the features of the Eaton Yukon system expected for each benefit.

Benefit	Eaton Yukon Features and Functions
Improve Service Reliability and Storm Restoration Response	• Real time outage notifications and restoration from meters • Two-way communications to meters (ping, reading) • NISC outage management system integration • Increased frequency of data and notifications as often as 1- and 5- minutes • Network Management within AMS systems
Time of Use Rates	• Integration with NISC's Meter Data Management for computation of rates • Meter capable of registering demand • Interval data measurement by hour or more frequent with data delivery guarantees of 99.5%
Consolidate Customer Programs	• Communications and control for load control programs from the meter • Program management capability • Remote connect/disconnect (Load control) • Integration with the NISC customer portal applications
Operational Efficiencies from Reduced Field Visits	• Remote meter reading • Remote connect/disconnect of meter • Meter alarms/alerts • Integration to NISC service order system for faster problem resolution
Water Operational Efficiencies	• Remote reading of water meters • Meter alerts (extended alerts on water meter) as they occur • Interval data by hour or more frequent • Robust validation, estimation, editing to identify water leaks • Integration to the NISC customer portal • Loss computations • Integration to the NISC service order system for faster problem resolution
Meter Accuracy Losses	• Solid state electric meters • Solid state or ultrasonic water meter integration • Meter alerts • Validation, estimation and editing of data

Distribution Network Losses	• Meter to transformer relationship management • Interval data measurement of voltage, kVAR, etc. • Voltage threshold alarms and alerts • System loss computations
Voltage Monitoring and Management	• Meter to transformer relationship management • Interval data recording of voltage, kVAR, etc. • Voltage threshold alarms and alerts • Grid devices (non-meter) monitoring • Grid device control • Volt/VAR optimization • Fault location, isolation, restoration (FLISR)
EV Miles Program Elimination	• EV load detection capabilities • Time-of-use calculations
Improved Billing Accuracy and Customer Experience	• Interval data by hour or higher • Two-way communications for an on-demand read • Integration with the NISC customer portal • Integration with NISC product suite • Data estimation