



Washington Electric Cooperative, Inc.

40 Church Street
P.O. Box 8
East Montpelier, Vermont 05651

Toll Free: 800-932-5245
Telephone: 802-223-5245
Fax: 802-223-6780
www.washingtonelectric.coop

Request for Proposal for an Advanced Metering Infrastructure Solution

Deadline for Submission: ~~June 25, 2024~~ July 10, 2024

Issued by **Washington Electric Cooperative**

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WEC RFP for AMI Solution

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1. LEGAL NOTICE

Washington Electric Cooperative (“WEC”) endeavors to procure and deliver proposals for:

An Advanced Metering Infrastructure (AMI) Solution

Responses must be delivered via email to AMI@wec.coop on or before ~~Tuesday, June 25, 2024~~ **Wednesday, July 10, 2024** (refer to the schedule in Section 3.2) with the following subject line and title: "Proposal for an Advanced Metering Infrastructure Solution".

Washington Electric Cooperative

Louis Porter, General Manager

2. INSTRUCTIONS TO PROPOSERS

Proposals shall be considered firm and will be valid for a period of three hundred and sixty-five (365) calendar days from the Proposal deadline.

A signed **Appendix A – Confidentiality Agreement** is required from all vendors in order to receive a copy of WEC's GIS data. The signed and dated Agreement must be received by WEC on or before **Wednesday, May 29, 2024**. Within (3) business days of receiving an executed Agreement, WEC will provide GIS data (see section 4.4 for additional information) and will send an invitation to the Pre-Proposal Teleconference.

2.1 Proposal Requirements

Proposals shall be delivered via email and include the following:

- Proposal **price shall be firm** and include the purchase of a complete Advanced Metering Infrastructure Solution and Installation Services. Include any freight and delivery charges to the final location.
- For Advanced Metering Infrastructure Solution, all components and equipment provided are to be the manufacturer's **latest model or version**.
- **Equipment warranty** information shall be included within the proposal.

WEC has identified the following additional **Mandatory Requirements**:

- **Meter installation services** must be included in the proposal. WEC desires to establish a single contract for the AMI system and installation services. See Section 7 for details.
- The vendor must provide at least **three (3) references** for a similar implementation to WEC in size and geographic terrain, system version and integration with the NISC software suite including billing, meter data management, outage management and customer portal.
- The AMI 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 Proposer needs to fully address all requirements of this solicitation RFP related to performing all required work, including site assessment, drawings and document submittals, manufacturing, testing, delivery, and technical support during and after installation.

WEC is an Equal Employment Opportunity/Affirmative Action employer. All bidders are expected to comply with all applicable equal employment opportunity laws and statutes.

Successful bidders will be expected to comply with the requirements of:

- *Title 2 of the Code of Federal Regulations, Part 200, Appendix II*
- *Title 7 of the Code of Federal Regulations, Part 1726*
- *Vermont State Construction Prevailing Wage Rate Schedule¹*

2.2 Submittals

The Proposal shall be brief and concise, yet sufficient in detail to allow for the thorough evaluation of the proposed products, plan of work and costs. The following shall be included in the Proposal:

Table 1

A	Cover Letter: Indicate the point of contact for your proposal with name, title, email address and phone number.
B	Executive Summary and Solution Overview: Concisely summarize, in no more than five (5) pages, the solution proposed, including a high-level block diagram illustrating the major components of the proposed system, specific meters proposed, the proposed network solution, software capabilities and integration with the NISC MDMS, CIS, and OMS.
C	Solution: Provide detailed responses to: <ul style="list-style-type: none"> • Section 2.1 - Mandatory Requirements • Section 5 - Technical Requirements • Section 6 - System Operations and Support Requirements • Section 7 - Meter Installation Services
D	Pricing Spreadsheet Proposal: As outlined in Section 8.1: <ul style="list-style-type: none"> • Complete MANDATORY pricing spreadsheet in Attachment B - WEC RFP AMI Solution - Pricing Matrix • Include initial equipment costs, project costs and annual costs over 15 years. • Include cost for any additional hardware or software referenced in the proposal. • Note: Any component or module that is referenced to comply with a requirement but not included in the price sheet will be considered as included in the stated price.

¹ <http://www.vtlmi.info/stateconstrprevailwage.pdf>

E	Project Plan: Provide a brief yet detailed outline of each anticipated work item and milestone dates including any expected support from WEC staff
F	Experience and Qualifications: <ul style="list-style-type: none"> • Include an outline of experience in developing, delivering, and installing AMI systems, AMI network design, software delivery and meter installations. • Include a list of recent projects of an AMI implementation like WEC in size and geographical terrain. • Provide at least three (3) references for the same proposed solution (meter make and model, Network specifications, software version), including integration with NISC and related experience of the implementation team. • Include an organizational chart and resumes of key personnel for the project
G	Standard Contract template: Proposer to include a standard contract template.

PROPOSALS THAT DO NOT FOLLOW THE ABOVE FORMAT MAY BE REJECTED.

Vendors may include appendices and any other supporting or reference materials in the proposal, with cross references to the appropriate proposal subsections that the information supports.

2.3 Questions About RFP

A pre-proposal meeting/teleconference is scheduled for **Tuesday, June 04, 2024, at 1PM ET** (refer to the schedule in Section 3.2). Details of this pre-proposal call will be provided to all attendees beforehand.

Vendors must submit questions relating to this RFP via email to AMI@wec.coop by **Monday, June 10, 2024**. All questions must be submitted in the form of an MS Word® document and must include the firm and name of the person submitting the questions. WEC will post all questions and answers to a public-facing OneDrive folder no later than **Tuesday, June 18, 2024** (refer to the schedule in Section 3.2).

Vendors shall notify WEC by email to AMI@wec.coop if any discrepancies or omissions in the specifications, or if in doubt as to intended meaning. If an explanation is necessary, a reply will be made by an addendum issued to all firms who have received specifications. WEC will not give verbal answers to any inquiries regarding the meaning or intent of the specifications.

2.4 Contact with Employees

Other than communications with the WEC AMI RFP project manager, direct contact with any other WEC employees, or consultants regarding issues related to this RFP, is expressly prohibited without prior consent. Vendors who directly contact WEC employees about this RFP risk elimination of their proposal from consideration.

3. PROJECT SCOPE

The project's objective and required elements are further outlined in Section 4, WEC OVERVIEW.

3.1 Project Schedule

WEC will determine the schedule and sequence for their AMI system implementation. WEC expects to begin implementation in early 2025. WEC is planning for a 3-year project timeframe.

3.2 Selection Schedule

Estimated schedule for completing the evaluation and selection is as follows:

Issue RFP	May 21, 2024
Signed Confidentiality Agreement provided to WEC	May 29, 2024
Pre-Proposal Teleconference, 1 PM ET	June 04, 2024
All Proposers Questions submitted by	June 10, 2024
Answers to Questions posted on	June 18, 2024
Proposal Due Date	July 10, 2024 June 25, 2024
Vendor Selection	September 2024
Contract Signed	December 2024

3.3 Selection Criteria

Proposals will be reviewed, evaluated, and ranked utilizing the following criteria:

- Price (20%)
- Experience Qualifications (20%)
- Technical and Non-Technical Requirements (30%)
- Project Delivery (10%)
- Ongoing Support (20%)
- Other factors and considerations as described below

WEC will evaluate all compliant proposals, as determined by WEC, for the purpose of selecting a short list of Vendors. Then, WEC may request presentations or meetings for product demonstration and proposal clarifications from the short-listed vendors. At WEC's discretion, WEC may choose to forego presentations and may award a contract based solely on information supplied in the Vendor's proposal response.

WEC reserves the right to request a site visit of an existing user of Vendor's system, prior to final selection, and to request additional information from or about a Proposer in addition to the information submitted with the proposal.

3.4 Right to Accept or Reject Proposals

WEC reserves the right to accept or reject, modify, or cancel this RFP and Proposals, in part or in its entirety, and solely as a matter of WEC's discretion. WEC may execute such discretion for several reasons including without limitation: adverse or inconsistent regulatory decisions or requirements, changed financing conditions, changed business circumstances. WEC further reserves the right to waive any informalities or technical defects of the proposal determined to be in the best interest of WEC. WEC may elect to reject all Proposals, to make multiple awards, or to make a partial award to one or more Proposers. WEC shall not, in any event, be liable for any expenses or costs incurred by Proposers in preparing their proposals.

3.5 Contingent Award and Execution of Contract

The successful Proposer will be notified by email of a contingent award. The final award will be contingent on negotiating and executing a mutually acceptable contract within thirty (90) days of the contingent award.

4. WEC OVERVIEW

This section contains background on WEC. Proposers are encouraged to read the RFP completely, understand WEC's needs thoroughly and seek appropriate clarification.

4.1 Background

Washington Electric Cooperative (WEC) was established in 1939 as a not-for-profit, member owned rural electric utility. WEC is Vermont's fourth largest electric distribution utility and serves approximately 12,000 members, spread over 2,728 square miles in 41 towns that span four 4 counties. The customer class served by the Co-op is predominantly residential, comprising 94% of the meters on the system. As a cooperative, WEC operates under the Seven Cooperative [Principles](#). WEC is a democratic organization controlled by its members. A 9 member Board of [Directors](#) is elected by its members. These directors actively participate in setting policies and making decisions and are accountable to the membership. In addition to distribution services, WEC owns two small generating facilities. A wholly owned subsidiary is responsible for operating the larger of the two facilities.

To support the Vermont Department of Public Services' utility requirements, WEC identified an upgrade to its Advanced Metering Infrastructure (AMI) necessary to meet these goals:

- Provide real time data collection in support of additional customer services
- Support the development of new rate designs such as Time of Day rates for customers wanting to manage their usage and when to charge their Electric Vehicles
- Support full two-way communication between WEC and the customer meter
- Enable service to be disconnected and re-connected at the customer premise remotely where applicable
- Improve outage response, minimize outage hours
- Facilitate grid optimization and resilience consistent with the 2022 Comprehensive Energy Plan
- Increase visibility into Distributed Energy Resources (DERs) with greater communication and control capabilities such as microgrids, that emphasize demand flexibility.
- Develop detailed customer and system load shapes to optimize the distribution system and plan for higher penetration of inverter based DERs
- Take advantage of new customer broadband service to improve electric services at the customer premise
- Improve SCADA capabilities and integrate with AMI network
- Support cost-effective delivery of electric service while facilitating electrification of thermal and transportation end-uses

WEC plans to replace their existing one-way, power-line carrier, obsolescing AMI system with a system that will allow two-way communication with customer premises for improved grid resiliency, expanded rate options, and greater reliability.

The Co-op's sparsely populated, geographically dispersed territory shaped its beginnings and remains its biggest challenge. WEC has the least dense system of any Vermont utility, with fewer than nine members per mile. Although many of the original dairy farms are gone, the Co-op's territory today remains overwhelming rural and residential.

Approximately 690 members, or just 6%, are in the small commercial class. The Co-op has 13 large commercial customers, four of which are part of net metering groups.



More information about WEC can be found at <https://www.washingtonelectric.coop/about-wec/>.

4.2 Current Meter Reading Practices

WEC uses the Eaton's Power Line Carrier (PLC) AMI System. Eaton's Power Line Carrier (PLC) AMI System purchased in 2012 with the Vermont ARRA grant.

WEC uses Itron meters. See below the breakdown of meter population and their counts.

Table 2

FORMS	CLASS	VOLTS	WIRE	NUMBER OF METERS
2S	200	240	3W	12460
2S	320	240	3W	312
3S	20	120	2W	8
4S	20	240	3W	32
9S	20	120 to 480	4WY/4WD	40
12S	200	120 to 480	3W	8
16S	200	120 to 480	4WY/4WD	40
36S	20	120 to 480	4WY	20

4.3 Information Systems

WEC’s current AMI system is integrated with NISC’s Meter Data Management System (MDMS), Customer Information system (CIS), Mapping and Staking (GIS), SmartHub, and Outage Management System (OMS). NISC’s MDMS receives daily meter reading data, validates, and stores them. The MDMS provides the reads to the CIS system for billing. Additionally, NISC’s MDMS also provides validated AMI data to NISC’s SmartHub customer portal to actively engage their members in managing their usage and costs.

Table 3

System	Product Details
Advanced Metering Infrastructure (AMI)	Eaton PLC (with Yukon head end Version 9.5.1)
Customer Information System (CIS)	NISC Version iVUE 2.58.2-10
Meter Data Management (MDMS)	NISC Version: 4.129.0
Outage Management System (OMS)	NISC Version 2.58.1
Mapping and Staking (GIS)	NISC Version 1.8
Customer Portal	NISC SmartHub Version: 24.10.0

4.4 GIS Data

Vendors are required to provide a network design for WEC service territories.

Data files of the best available location data will be provided for each member in WEC’s service territory. Data will be available in a secure Microsoft OneDrive folder, and login

credentials will be provided to respondents to access locations of substations, service locations, and poles upon receipt of the signed Confidentiality Agreement in Appendix A.

Send the signed Confidentiality Agreement to AMI@wec.coop . Please include the email address where you would like the OneDrive account credentials sent.

5. TECHNICAL REQUIREMENTS

Please answer all questions and provide detail on any specific capabilities of AMI technology in your response. Please show your responses in different font (e.g., bold, italics, color). A MS Word® version of this RFP will be made available upon request to AMI@wec.coop. Attach separate pages as necessary. Identify the section reference and question on all attachments.

5.1 Electric Meter Endpoints

This section defines the functional and technical requirements for new solid-state electric AMI revenue meters (AMI Meters) that shall be provided and deployed as part of this AMI project. WEC reserves the right to purchase one meter type, or more than one meter type based on negotiations with the Vendor.

Provide detailed responses for the following questions. Please answer all requirements in the tables below with a Comply/No Comply/Alternative response. Provide an explanation if an Alternative is proposed.

5.1.1 Identify the specific make and model of AMI Meters that support replacement of 100% of the meter population shown in **Table 2**. Note: Actual number of meters to be ordered will be updated at the time of contract negotiations. Meters proposed should have the following capabilities:

Table 4

	Question	Response: Comply, No Comply or Alternative
a.	AMI Meters shall be new, solid state with no moving parts except for the minimum number of required to support service disconnect switching, tamper detection, and/or “hard” demand reset.	
b.	Functional features of the new meters shall be programmable. All programmable meter features shall be fully accessible to utility staff both locally and remotely. Initial programming is to be done at the factory according to utility specifications.	
c.	AMI Meters shall have a 15-year life.	
d.	Meters shall feature security provisions that prevent local demand register resets by anyone other than authorized personnel.	

e.	All polyphase AMI meters shall auto-range when connected to services in the range of 120-480 Volts RMS, $\pm 20\%$.	
f.	Meters and Communication modules must meet ANSI requirements	
g.	Meters equipped with a service switch shall perform reliably during continuous operation at the maximum load indicated on the meter's nameplate, while at minimum rated ambient temperature and humidity.	
h.	Meters equipped with a service switch shall continuously monitor the service voltage on the customer side (load side) of the switch regardless of switch state. The meter shall generate an alert if voltage is present on a load terminal when the service switch is open and not allow a closing of the service switch.	

5.1.2 Describe the following service disconnect and reconnect features:

- 5.1.2.1 Describe both remote and local operation of the service switch, including "arming" features, if any, available with the proposed solution.
 - 5.1.2.2 Specify the number of disconnect/reconnect cycles that the switch is rated to perform at full meter load.
 - 5.1.2.3 Identify if the AMI Meters and/or Head End System has a duty cycle monitor for the service switch.
 - 5.1.2.4 What features are in place in the AMI Meter to keep the switch from repeatedly cycling open and closed?
 - 5.1.2.5 Describe whether a "demand limiting" capability can be enabled via the AMI Network. This means that control of the switch can be configured to disconnect the service if demand exceeds a threshold value. Service shall be re-connected after a predetermined time interval or when the demand drops below the threshold value. Specify if and how the proposed solution allows the threshold and time interval values to be securely set locally and/or remotely over the network using the AMI Head End System.
 - 5.1.2.6 Describe at what voltage level the service switch will not close if the service has been disconnected. Vendor shall describe if this voltage level can be specified by the utility and how it is set.
- 5.1.3 Identify the electric quantities on all meter forms that the proposed AMI meters are capable of measuring.

5.1.4 Provide a table that shows the relationship between number of channels, interval length, and days of storage in the proposed AMI Meters. Please list any limitations around the number of channels for the meter models proposed. Explain the meter data retention period in the Head End System.

The proposed meters should have the following recording capabilities.

Table 5

	Question	Response: Comply, No Comply or Alternative
a.	AMI Meters shall be capable of recording and storing interval data in interval lengths of 15 minutes.	
b.	AMI Meters shall be capable of recording Time-of-Use (TOU) data. This should include an option to record “roll” or “block” interval demands	
c.	AMI Meters shall record total delivered and received energy measurement data in dedicated registers for single phase and poly phase services. Net energy is to be recorded in a dedicated register.	
d.	Demand quantity (kW, kVA) recorded in each register shall be configurable through programmable meter settings. Values stored in demand registers shall continuously increase until they are reset locally or via the AMI Network by an authorized AMI user.	

5.1.5 Describe the process to perform a demand reset in each proposed meter type. Demand resets should occur using requests from CIS at the end of a billing cycle or off-cycle bill.

5.1.6 Describe how the day/date/time of AMI Meter is maintained in the network. Describe how timekeeping is performed and if proposed meters contain clocks. Include the latency of getting AMI Meters time synchronized after an outage.

5.1.7 Describe the abilities of the proposed AMI Meters and the AMI system to provide time-stamped voltage data, maximum and minimum voltage data, sag and swell events or counts, loss of voltage, etc. Describe the method of measuring voltage, average or RMS. Include the frequency of data retrieval from the AMI Meter by the AMI system (real time, daily, scheduled, or on request).

5.1.8 Describe the meter display options for the proposed AMI meters. The display features should meet the following requirements:

Table 6

	Question	Response: Comply, No Comply or Alternative
a.	The AMI Meter shall be equipped with an industrial grade display capable of presenting at least five (5) reading digits, along with status enunciators and ID code numbers. The display shall include an easily interpreted graphic representing the magnitude and direction of energy quantities passing through the meter.	
b.	Meters with an integrated service disconnect switch shall have an indicator that shows the status of the switch. The indicator shall be easily recognized, readily interpreted, and clearly visible to an observer viewing the meter.	
c.	<p>AMI Meter display shall have an easily interpreted indicator showing the status of the AMI Meter's AMI network connection. For example, the indicator may show the following states:</p> <ul style="list-style-type: none"> • Network detected – connected • Network detected – not connected • No network detected • Transmitting • Receiving 	
d.	The meter nameplate shall include all applicable meter identification information. This information shall include a unique alphanumeric meter ID code (company number) specified by WEC, the manufacturer's name, the manufacturer's serial number, manufacturing date, bar coding, etc. The bar code must include WEC's meter serial number and no other data.	

5.1.9 Describe if any meter components (service switch, display, communication board) are serviceable and/or replaceable by WEC and/or the Vendor.

5.1.10 Vendors shall describe how the "test mode" feature is activated and suspended on each of the proposed models of AMI Meters. Here are some additional requirements related to meter testing capabilities.

Table 7

	Question	Response: Comply, No Comply or Alternative
a.	Before delivery from the factory, the meter manufacturer shall test each meter to certify its accuracy and proper operation.	
b.	A file with meter attribute information and test results shall be provided to WEC electronically prior to every shipment from the manufacturer and must conform to the NISC data entry and format.	
c.	AMI Meters provided shall not require any special equipment for shop or field-testing procedures. All testing should be conducted using standard, commercially available test equipment in both the field and the shop.	
d.	All AMI Meters proposed shall feature a “test mode” that suspends normal meter operation so that consumption and demand measurements from tests are not recorded in the billing registers and/or interval data. All energy measurements and other measurements stored in the meter shall be unaffected by energy passing through the meter while in test mode.	

5.1.11 Provide a list and description of all alarms/alerts, events, and notifications (real-time and non-real time) provided by the AMI Meter. This should include tamper, outage, restoration, and deviations from nominal AC voltage, frequency, waveform, and temperature.

5.1.12 Vendors shall describe how the “last gasp” notifications occur, or if they may be impeded by the loss of power to a Collector. AMI Meters must have the ability to provide “last gasp” notification of power outages within 30 seconds or less.

5.1.13 Describe how the AMI Meter can be remotely reconfigured to turn on power quality monitoring when needed. Does the power quality function in the meter run continuously at all times?

5.1.14 Describe the local communication software and methods between the AMI meters and staff who locally read and/or service the meter. Local communications may be with a radio interface, Wi-Fi or an optically isolated connection accessible on the

outside of the meter cover. Is more than one local communication software required for the solution based on the meters used in the system?

5.1.15 Describe the AMI Meter's internal memory. Vendor shall describe how the proposed AMI performs in the event of a communication failure and the AMI meter's ability to store data until communication has been re-established.

5.1.16 Describe the meter's program security provisions including but not limited to the following information:

- a. Method of multi-level authentication and authorization.
- b. Explanation of how program access and change events are recorded by the meter.
- c. Explanation of the provisions securing communication with the meter via the meter's local communications portal(s) (optical and/or RF).

5.1.17 Provide details of all metering compliance (ANSI, UL, IEC, etc.) and certifications.

5.1.18 Provide details of the failure rate for the proposed AMI Meters.

5.1.19 Describe how the meter records usage on the days of daylight savings time change?

5.1.20 Describe the meter registration process with the AMI Head End.

5.1.21 Describe how the meters will be programmed over the air (OTA).

5.1.22 Describe any additional meter capabilities that function within the AMI solution? For example, are there any distributed intelligence (DI) or edge intelligence capabilities? What system or software is required to support this functionality? If available, include pricing in the price sheet. Provide a matrix of meter type, network type and DI applications supported.

5.2 AMI Network

The following section includes the functional and technical requirements for interoperation of the AMI Head End System, AMI Network, Collectors, and related network equipment. WEC requires an AMI Network that will provide two-way of transport data and commands which support the proposed AMI functions at all AMI endpoints, in accordance with the functional and performance requirements specified throughout this RFP.

Provide detailed responses for the following questions. Please answer all requirements in the tables with a Comply/No Comply/Alternative response. Provide an explanation if an Alternative is proposed.

Table 8

	Question	Response: Comply, No Comply or Alternative
a.	AMI Solution shall use the same network for electric, Demand Response and Distributed Automation.	
b.	AMI Network shall include two-way transport of data and commands between AMI endpoints and their respective collectors, which transfer the messages to/from the AMI Head End System via the Vendor's proposed backhaul network.	
c.	AMI System shall not rely on any collector device which may become a single point of failure for data retrieval of any specific endpoints.	
d.	Authorized utility personnel shall be able to remotely access and modify all configurable AMI Meter programming/configuration parameters via the AMI Network.	
e.	AMI System shall be IPv6 compliant.	
f.	All elements of the proposed AMI Network shall support industry best practices for protection of data confidentiality, data integrity, and operational security.	
g.	AMI Network must have sufficient capacity to support Demand Response, integrated Volt/VAR control, Feeder balancing, Distribution Automation and Net Metering.	
h.	To avoid inconvenience to our members, Collectors shall be capable of being installed and replaced without causing outages to members' service.	
i.	AMI Network should scale to include new network devices, reroute, when necessary, without manual intervention	
j.	The AMI Network should have the option of a backup power supply for collectors with a minimum of 8 hours of backup time	

5.2.1 Describe the proposed AMI Network and backhaul network provisions that will serve 100% of AMI endpoints. AMI endpoints will communicate with Collectors, and the Collectors will communicate directly with the Vendor's proposed backhaul network.

Note: Fiber take-out points are available in the WEC substations and in specific locations owned by WEC members and CUDs. Use of fiber for backhaul is strongly preferred, wherever available. WEC is interested in learning what options might be available for fiber-to-the-home meter reading. Provide pricing if available.

5.2.2 Provide a network design showing the number and approximate location of Collectors and/or Repeaters (if necessary) on a map of WEC service territories. Use the GIS data provided in the files listed in Section 4.4. For purposes of sizing and configuring the network, assume the following baseline system activity:

- 100% network coverage
- 99.8% daily read rate for register and interval data.
- On-demand reading requests shall have an average response time of 30 seconds or less at least 90% of the time. Upon failure, the system will support up to 3 retries.
- All polyphase AMI Meters will record, at least, four channels of 15-minute interval data, delivered to the AMI Head End System at least four (4) times within a 24-hour period.
- All single-phase AMI Meters will record, at least, four channels of 15-minute interval data, delivered to the AMI Head End System at least four (4) times every 24 hours.

5.2.3 The AMI Head End System shall send 100 individual control message commands to AMI Meters daily with an integrated service switch to perform 50 connections or disconnections a day.

5.2.4 All AMI Meters will send outage and restoration notifications to the Head End System as they occur.

5.2.5 Provide the percentage of total usable AMI network communication capacity Vendor expects to be used in the proposed AMI system under the baseline operating conditions described above. Additionally, Vendors shall predict the percent of network capacity utilized at the point in the AMI system with the least communication capacity and shall also recommend the maximum percentage loading that Vendor considers acceptable for WEC's intended uses of the AMI system.

5.2.6 Provide the specification sheet for the collector and associated equipment. Specifications must include how the collectors will be powered and if there are any

battery requirements or remote antennas needed. If multiple collectors or external antenna versions are prescribed, then specification sheets will be included for each model variant.

- 5.2.7 All AMI firmware in the AMI Meters, Network devices, and customer premise devices, shall be remotely accessible for review, modification, and replacement over the AMI Network.
- 5.2.8 Describe how personnel will perform firmware upgrades (patches) using either the Head End System or remote meter management software with the AMI Network. Clearly describe the AMI Meter's ability to sense, reverse, and report unauthorized or unsuccessful firmware replacements.
- 5.2.9 Describe how the AMI Radio transmitters will be read by more than one AMI data collector, providing collector redundancy.
- 5.2.10 Describe how data is transferred between collectors and the network focusing on security and data encryption protocols.
- 5.2.11 Is radio frequency (RF) Spectrum license required? If so, how many channels are included in the stated spectrum license fees?
- 5.2.12 WEC expects a subset of their members to opt-out of AMI meters due to radio-frequency (RF) concerns as they switch from existing powerline carrier solution. Describe your experience with opt-outs and provide a recommendation for a meter reading solution for the opt-outs.

5.3 Head End System Functionality

WEC is seeking hosted software for the Head End System (HES) functionality. The Proposer shall provide day-to-day support for the AMI solution. Seamless integration between HES and (existing NISC) MDMS is expected.

Please answer all questions with a Comply/No Comply/Alternative response. Provide an explanation if an Alternative is proposed.

Table 9

	Question	Response: Comply, No Comply or Alternative
a.	The Head End system shall be established, well-proven, commercially available based on widely adopted technology standards.	
b.	The Head End Software shall manage all meter interrogations and communications for the AMI Network.	
c.	<p>The HES shall:</p> <ul style="list-style-type: none"> • Manage the schedule to collect the reads from the meters • Perform scheduled demand meter resets based on the bill cycle schedule or via integration from the MDMS or CIS • Provide meter readings to the MDMS based on the billing or read schedule or upon request • Report unread meters in scheduled routes/cycles • Keep track of meters that haven't reported reads and perform automated retries to obtain reads • Reschedule unread scheduled readings for following day reading file for the billing system • Automate data gap filling • Report on exceptions 	
d.	The AMI System shall not fail to retrieve billing data from any single meter more than 15 consecutive days in the absence of a permanent AMI communication failure.	
e.	Data stored in the AMI Meters and/or in the AMI Network shall be stored in the Head End System for a minimum of 90 days from the day the data is first stored; event history, i.e. outage history, should be 2 years	
f.	AMI system should provide meter data multiple times a day to MDMS for VEE (Validation, Estimation and Editing)	
g.	The HES shall have disaster recovery services.	

h.	Support for the AMI Network and Wide Area Services shall be included in the support services.	
i.	Backup services of all software, data and configurations shall be performed at least daily.	
j.	Backups shall be stored off site in a geographic region different from the hosting data center.	
k.	All user activities, configurations and updates must be logged and tracked.	
l.	Policies, safeguards, parameters, and monitoring shall be in place to prevent unacceptable interference (performance, high workload) problems among users.	
m.	AMI software shall support webservice calls or MultiSpeak methods (specify version) or CIM based integrations used by NISC	
n.	AMI software must integrate with Outage management system to report outage and restoration events in real-time	
o.	The AMI System shall support a customer pre-payment function.	
p.	The AMI System shall support the measurement of load from electro-technologies such as electric vehicles.	
q.	The AMI System solution shall have the capability of measuring battery storage levels.	

Provide detailed responses for the following questions:

- 5.3.1 Provide an overview of the features and functionality of the HES (maximum of 2-pages).
- 5.3.2 Provide screen shots of the Head End System dashboard and key screens or reports available from the proposed Head End system.
- 5.3.3 Provide details of daily procedures to manage meters, collectors, and network.
- 5.3.4 Provide details of procedures when there is failure of meters, collectors, and network.

- 5.3.5 Describe the Data Center(s) hosting the HES. Include ownership, location, physical facilities, tier, and security.
- 5.3.6 Provide a copy of the Service Level Agreement with the hosting data center.
- 5.3.7 Describe the type of hosting services provided such as: Infrastructure as a Service (IaaS), Platform as a Service (PaaS), Software as a Service (SaaS), Managed Service (MS)
- 5.3.8 Describe the test system as well as disaster recovery services and process.
- 5.3.9 Describe the data protection and operational security provisions in the HES.
- 5.3.10 Describe all the integration points of the Head end software with NISC's MDMS and CIS systems.
- 5.3.11 Describe how the move-in / Move-out and remote connect / disconnect processes will be handled using remote communication protocols with the meter?
- 5.3.12 Describe all the key reports available in the HES required to manage the network and the meters.
- 5.3.13 Describe the HES outage and restoration processes with NISC's Outage Management systems in real-time. Quicker restoration and reducing outage hours for members during storms is one of the primary goals of WEC.
- 5.3.14 Provide a list or screen shots of all outage management reports.

5.4 Distribution Automation (DA)

- 5.4.1 Does the AMI system have any SCADA capabilities?
- 5.4.2 The AMI System should be able to communicate with electric field equipment with DNP3 or IEC 61850 over your AMI wireless system, such as: Fault indicators, Downline IEDs attached to capacitor banks, voltage regulators and other protection devices. If a proprietary AMI communication protocol, it must be converted to DNP3 or IEC 61850 by the DA interface module.
- 5.4.3 Is the proposed AMI system able to transmit a firmware transfer to update the firmware of a device to other vendors such as SEL, Eaton, reclosers, regulators, etc.?

- 5.4.4 The AMI Network and system must support a separated DA traffic mechanism. Please state your ability to provide a sub-network or message prioritization for DA traffic only. The AMI system must be able to set a priority level for defined endpoints such as a DA device to allow priority routing to occur such that as other system events such as firmware upgrades, hourly meter reads would not impact the targeted latency of five seconds or less for the communications with a DA device between the master and the DA endpoint.
- 5.4.5 Please list the Distribution Automation equipment manufacturers that your system is communicating with now across your customer base, such as Eaton, SEL, ABB, Siemens, GE, others.
- 5.4.6 The AMI Head End System should provide report screens to support the functionality described above. Please indicate if the screens are for configuration, maintenance, and support, versus issuing the commands to the field devices. Please provide an example.
- 5.4.7 The overall transport infrastructure must allow any feeder-based Distribution Automation point to be reached with no more than one (1) hop. If a tower-based system is proposed, a scalability plan or detail should be provided. Assuming a single hop exists for DA points, a remote DA point must be able to send or receive a 500-byte file between the remote device and AMI within five seconds (in-bound).
- 5.4.8 The DA system must be able to operate over AMI system during an eight-hour power outage event on the feeder where the DA scheme is in place. (what is the state after eight hours?)
- 5.4.9 Explain any additional system functionality available today which would add value to the project.

6. SYSTEM OPERATIONS AND SUPPORT REQUIREMENTS

Please answer all questions on the project implementation and ongoing support. WEC expects Proposers to provide project management implementation services as well as ongoing support for system operations.

6.1 Project Delivery & Support

Please answer all questions with a Comply/No Comply/Alternative response. Provide an explanation if an Alternative is proposed.

Table 10

	Question	Response: Comply, No Comply or Alternative
a.	The vendor shall assign a single project manager for implementation.	
b.	The vendor shall provide weekly and monthly reports during the project delivery phase.	
c.	The vendor shall perform all software product installations on a hosted computer environment.	
d.	The vendor shall monitor the system daily and alert WEC to any issues with any aspect of the AMI solution.	
e.	Support services shall be provided between 7am and 6pm ET.	

Provide detailed responses for the following questions:

- 6.1.1 Describe the Respondent's proposed implementation methodology for the solution.
- 6.1.2 Provide a schedule with projected implementation timelines and key milestones. Identify all tasks to integrate the solution with WEC's systems, including system installation or setup, configuration of the software, user training, testing, and cut-over to production.
- 6.1.3 Explain what project status reporting has been used with other similar-sized utility projects; include project timelines, hardware delivery updates, and network performance updates.
- 6.1.4 Describe the criteria used for transitioning the customer from implementation to support phase.

- 6.1.5 Provide the Respondent’s recommendation for post implementation staffing for ongoing management and maintenance of the solution.
- 6.1.6 Explain the support procedures when there is failure of meters, collectors, network and/or software.
- 6.1.7 Provide a description of the Respondent’s intended support system for the solution, including the following:
- Location(s) of support personnel
 - Hours of support
 - Organizational structure of support team(s)
 - Support escalation process (including an organization chart with escalation paths)
 - Support tools used (phone line only, ticket access, etc.)
 - Any tiers (bronze, gold, so on) that can be provided as well as the recommended support level for WEC.
- 6.1.8 Describe the Respondent’s tiered structure (if applicable) and the guaranteed time to respond to and resolve issues for each priority level.
- 6.1.9 Describe how the respondent is planning to replace the existing powerline AMI solution with the proposed new solution?

6.2 Quality Assurance & Change Management

Please answer all questions with a Comply/No Comply/Alternative response. Provide an explanation if an Alternative is proposed.

Table 11

	Question	Response: Comply, No Comply or Alternative
a.	The vendor shall test and inspect all components of the AMI solution prior to delivery and installation.	
b.	Unacceptable shipments shall be marked, segregated, and reported.	
c.	The vendor shall install or load all shipment files into the HES as applicable.	
d.	The vendor shall monitor the system daily and alert WEC to any issues with any aspect of the AMI solution.	

Provide detailed responses for the following questions:

- 6.2.1 Provide details (workflow or description) on the company's quality assurance plan or process for the solution, including details on how your company responds to:
- Service/support related problems
 - Software quality problems
- 6.2.2 Describe the quality management structure for inspecting and sampling the meters being proposed. Outline how quality will be achieved, controlled, assured, demonstrated, and managed.
- 6.2.3 What information does the Respondent provide and include with the delivered product?
- 6.2.4 Outline how the Respondent controls non-conforming products and deals with non-conforming meters and shipments.
- 6.2.5 Explain the Return Merchandise Authorization (RMA) process for equipment. Include the typical time span for resolving issues and returning the equipment back to WEC. Have there been any times when the RMA backlog has been abandoned by the meter vendor? If so, what steps does the utility need to take to replace RMA equipment? What is the recourse for the utility should the vendor lose equipment sent back for RMA?
- 6.2.6 Describe the quality management structure for inspection and sampling of all other components being proposed. Outline how quality will be achieved, controlled, assured, demonstrated, and managed.
- 6.2.7 Describe the Respondent's proposed methodology and plan for system acceptance testing.

6.3 Training

Please answer all questions with a Comply/No Comply/Alternative response. Provide an explanation if an Alternative is proposed.

Table 12

	Question	Response: Comply, No Comply or Alternative
a.	The vendor shall provide onsite training	
b.	The vendor shall provide training materials customized to WEC's solution.	
c.	The vendor shall provide ongoing training services throughout the life of the solution.	

Provide detailed responses to the following questions:

6.3.1 Describe the Respondent's training documentation. Provide sample documentation.

6.3.2 Recommend the various staff positions that should be trained on the solution.

6.3.3 Describe what materials are delivered for upfront training. Supply a sample training course outline (course syllabus) and material.

6.3.4 Describe best practices for ongoing training as applied at other similarly sized utilities.

6.3.5 Indicate if Web conferencing sessions are offered. Identify any applicable costs.

6.4 Product Releases, Upgrades & Roadmap

Please answer all questions with a Comply/No Comply/Alternative response. Provide an explanation if an Alternative is proposed.

Table 13

	Question	Response: Comply, No Comply or Alternative
a.	The vendor shall provide a solution or fix for critical issues within 24 hours.	
b.	The vendor shall provide at least one product release per year.	
c.	The vendor shall support all components of the AMI solution for the 15-year life of the product.	
d.	The vendor shall support at least 2 releases back from the current version.	
e.	The vendor shall consult with WEC and request approval from WEC to perform any fix, upgrade or new release.	

Provide detailed responses for the following questions:

- 6.4.1 State the number of new releases, upgrades, and bug fixes within a year. Describe the Respondent's anticipated frequency of releases (major and minor) and the suggested way this schedule can be managed by the utility.
- 6.4.2 Describe the vendor support and responsibilities for delivering and installing new releases, system upgrades, bug fixes and rollbacks.
- 6.4.3 Describe the notification and communication methods vendor provides for new release, upgrades, and bug fixes.
- 6.4.4 Provide a 5-year product roadmap which describes new features and functions, product line convergence and new development.
- 6.4.5 Provide a sample of release notes to understand the quality of this documentation. Provide a sample of the test scripts performed for the release.
- 6.4.6 Please provide details on respondent's user group. This may include details of specific forums for engaging with the user group (annual conference, local events, so on). This may include details of how the user group supports product roadmap requirements.
- 6.4.7 Describe the process of upgrading the HES - applying patches and managing software updates. Does the maintenance contract include software upgrades?

7. METER INSTALLATION SERVICES

WEC requires that the AMI vendor provide meter installation services and installation project management. WEC and its contractors must comply with Electric System Construction Policies and Procedures. Details are found at:

<https://www.ecfr.gov/current/title-7/subtitle-B/chapter-XVII/part-1726>

WEC plans to install the commercial and transformer rated meters and the installation contractor will only exchange single phase meters. WEC is required to pay a prevailing wage. Information can be found at: <http://www.vtmi.info/stateconstrprevailwage.pdf>

7.1 Meter Installation

Please answer all questions with a Comply/No Comply/Alternative response. Provide an explanation if an Alternative is proposed.

Table 14

	Question	Response: Comply, No Comply or Alternative
a.	The vendor must be authorized to work in the State of Vermont and has experience working with cooperatives	
b.	The vendor shall manage the meter installations for all the service locations WEC has identified for replacement	
c.	Vendor must provide a dedicated Project Manager to manage all installation operations from Planning Phase until the last meter is installed and commissioned.	
d.	Meter installation services must be priced per unit based on meter descriptions and locations	
e.	Meters must be commissioned within 4 days of being installed	
f.	Describe the installer staffing process for the project. Identify all training and certifications required for installers. Include handling of hazardous situations, tampering and sites where an electrician is required.	
g.	Comply with all Safety and training rules for the State of Vermont.	
h.	Safety equipment is provided by the vendor.	
i.	WEC prefers that the NISC Work Management system be used for meter installations. Otherwise, the vendor must provide work	

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	management software for managing the daily installations. This system should be accessible by WEC staff to check status real-time and provide automation to update the CIS system of the meter change-outs.	
j.	Vendor must provide reports showing how many meters were installed per day, providing details on successful installs, failures, and re-tries. Reports must track customer or meter issues and failed installations.	
k.	Vendor must collect photographs before and after the installation at each service	
l.	Vendor must do their best to not disrupt the installation area and leave the scene as it was before	
m.	WEC prefers to make all necessary contact with its members. How does this fit into the Vendor installation process?	
n.	The installation vendor must make at least 3 attempts to install the meter before creating a failure status.	
o.	The installation vendor must provide pricing details for all services offered including optional services for WEC to review.	
p.	Comply with Electric System Construction Policies and Procedures. Details found in https://www.ecfr.gov/current/title-7/subtitle-B/chapter-XVII/part-1726	
q.	Staging meters throughout the service territory will be the responsibility of the installation contractor.	

Provide detailed responses to the following questions:

- 7.1.1 Describe the meter installation plan for a utility like WEC. Provide sample installation documentation. The plan should include the use of WEC personnel to perform or support the installations.
- 7.1.2 Describe previous projects in which the vendor and the installation contractor have worked together. Provide at least three references.
- 7.1.3 Meter storage facility – does the installer provide storage facilities or will WEC have to store meters?
- 7.1.4 Describe your capacity to support meter inventory management.

7.2 Subcontractor Relationships

- 7.2.1 If the Vendor plans to enter into or has existing contracts with subcontractors and suppliers to complete the proposed project such as the installation contractor, the Vendor shall provide copies of all contracts to WEC for review.
- 7.2.2 The Vendor represents to WEC that the Vendor and its subcontractors, suppliers and agents are properly insured, licensed, and qualified to perform the type of services proposed.
- 7.2.3 The Vendor shall remain entirely responsible for the quality, completeness, and timeliness of the work of its contractors and subcontractors. The Vendor shall fully disclose existing legal relationships and/or litigation between its subcontractors and their clients or customers, and between the Vendor and its clients or customers.
- 7.2.4 Describe each of the subcontractors that the Vendor proposes to use in this project and the portion of the proposed AMI for which said subcontractor(s) will be responsible.

7.3 Partnership and Alliance Relationships

- 7.3.1 Describe all (if any) partnerships, alliances, and other strategic relationships the Vendor has established with other energy industry participants, including AMI and meter developers, suppliers, distribution automation (DA) suppliers, utilities (other than direct sales relationships), software suppliers, and integration and consulting firms.
- 7.3.2 Provide copies of contracts or other documents on strategic relationships if the relationship is material to the AMI project. If the Vendor's proposal is successful and leads to a contract with WEC, failure to timely disclose a relationship which later is found to have materially influenced the course of the WEC AMI project may constitute a material breach of contract.

8. COMMERCIAL PROPOSAL

The project's cost is to be negotiated with the vendor having the number one ranked proposal based on their ability to meet or exceed all requirements. Any exceptions or alternative solutions to the requirements are to be identified and clearly marked as exceptions or alternatives. The overall cost of ownership over the project's life will be considered in the selection process. This is a total cost of ownership-based selection process.

8.1 Pricing

- 8.1.1 Vendors are required to fill out **Appendix B – WEC RFP AMI Solution - Pricing Matrix**. Separately, the vendor is also required to provide its standard contract for WEC to review.
- 8.1.2 Proposals shall include specific makes, models, warranties, pricing, pricing period, and optional future price protection guarantees for at least one primary AMI Meter and preferably one alternate AMI Meter.
- 8.1.3 Include the procurement method for each make/model. AMI Meter warranties shall be no less than two years from the date of installation. Collectors (and repeaters) warranties shall be no less than two years from the date of installation.
- 8.1.4 Proposals shall not include any unquantified costs, such as fuel charges, delivery charges, or any other miscellaneous fees and/or surcharges. Unit prices shall be all-inclusive.
- 8.1.5 Provide a plan to protect WEC from abnormal failures in excess of 0.5% annually throughout the expected life of the AMI meters.
- 8.1.6 The vendor's proposal shall provide the following information (when applicable) for each proposed software component. Include any set-up and services costs and the annual cost per meter over 15 years.
- 8.1.7 It is critical for WEC to manage their risks for both product and work performed through warranties and guarantees offered by the Vendor. WEC will require protection against any defects in materials or other premature failures in software or hardware that may occur as part of this project.

9. APPENDIX A – Confidentiality Agreement

The Confidentiality Agreement can be accessed here: [Attachment A - Confidentiality Agreement \(WEC RFP - AMI Solution\).pdf](#).

10. APPENDIX B – Pricing Matrix

Complete the pricing matrix, which can be accessed here: [Attachment B - Pricing Matrix \(WEC RFP - AMI Solution\).xlsx](#).